SEQUENCE LISTING

SEQ ID NO:1

5

atgcagctgagaaaaatgcagaccatcaaaaaggagcccgcacccctagatcctaccagcagctcagacaagatgctgctgctgaactctgccttagc
tgaggtggccgaggacctagcctcaggtgaagatttgctcctgaacgaagggagcatggggaaaaacaaatcctcggcgtgtcggagaaaacgggt
attcattccggacgagaagaaagacgccatgtattgggagaaacggcggaaaaacaacgaagctgccaaaagatctcgggagaagcgccgcctcaa
tgacctggttttggagaacaagctgattgccctgggggagaagaaaatgccactttaaaagctgagctgctctccctgaaattaaagtttggtttaattagctcc
acggcgtatgcccaagaaatccagaaactcagtaattccacagctgtctactttcaggactaccagacatccaaggctgccgtgagctctttgtggacg

10

agcatgagcctgcgatggtagccggaagttgcatctcagtcatcaagcactctccccagagctcgctctccgatgtgtcagaggtgtcctcggtggagc
acactcaggaaagccccgcacaggaggctgccggagccctgagaacaagttccctgtgatcaagcaggagcccgtggagttggagagctttgcca
gggaggccagggaggagcggggcacgtattccacctccatctaccagagctacatgggaagctctttctccacttactcccactccccacccctcttgc
aggtccatgggtccactagcaactccccaagaacctcagaggccgatgagggtgtagtgggcaagtcttctgatggggaagacgaacaacaggtccc
taagggccccatccattctccagtggagctgcaacggggttcacgccacggtggtgaaggttccggaagtgaacccttctgccttaccgcacaagcttcg

15

gattaaagccaaggccatgcaggtcaaagtggaggctttggacagcgagtttgaaggcatgcagaaactctcttcacccgccgatgcgatcgccaaa
gacattttgacctggagaaacatgaacctcgggtatggcccattcctccctccctcctttctcagtgcaggtgacgaacattcaagattggtccctcaaat
cggaacactggcatcacaaagaactgagcagcaaaactcagagtagcttcaaaacaggtgtggtggaagtcaaagacggtggctataaggtttccga
agctgagaatttgtatttgaagcagggaatagcaaacttatctgcagaggtggtctcgctcaagagattcatagccacacaaccgatctcggcttcggact
ccaggtaa

20

SEQ ID NO:2

MQLRKMQTIKKEPAPLDPTSSSDKMLLLNSALAEVAEDLASGEDLLLNEGSMGKNKSSACRRK
REFIPDEKKDAMYWEKRRKNNEAAKRSREKRRLNDLVLENKLIALGEENATLKAELLSLKLKF
GLISSTAYAQEIQKLSNSTAVYFQDYQTSKAAVSSFVDEHEPAMVAGSCISVIKHSPQSSLSDVS
EVSSVEHTQESPAQGGCRSPENKFPVIKQEPVELESFAREAREERGTYSTSIYQSYMGSSFSTYSH
SPPLLQVHGSTSNSPRTSEADEGVVGKSSDGEDEQQVPKGPIHSPVELQRVHATVVKVPEVNPS
ALPHKLRIKAKAMQVKVEALDSEFEGMQKLSSPADAIAKRHFDLEKHGTSGMAHSSLPPFSVQ
VTNIQDWSLKSEHWHHKELSSKTQSSFKTGVVEVKDGGYKVSEAENLYLKQGIANLSAEVVSL
KRFIATQPISASDSR

SEQ ID NO:3

tgtccgctctgcctccacacctagcaccccagcccgctgctgccccggtgagaaccccccagcttgggccttgtcatggtgccagcaggtggccctga
gcttctgacaggggcctgcctatagacctgcaggcctgaggcctcagactcacactcaaggggcaagaggccctggtggcccacctaagagccacct
ctgtccccagccctgctgccccactgatgtctgactgagacccagcagtgaccctgagctgcctgcccactgcctcctcctggtccctgaggttggctct
gccgaggacggacgactcttctgaagcaggcggctaacggaagcagccccaagcctccaccgcagcatgggcagtgccagcccaggcctgagca
acgtgtcccccggttgcctgctactgttcccagatgtggcaccacgaacagggacggagaaggcagcatcaggagcaatgggccctgagaagcagg
aatggagtcctagtccacccgccacccctgagcagggcctgtctgcttctacctctcttactttaacatgtatcccgacgatagcagctgggtcgccaaa
gtccccgaggcccgtgccggggaggaccaccggaggagcccgagcagtgtcccgtcattgacagccaggcctctgggagcacgttggatgagc
actcgctagagcaggtgcaatcgatggttgtgggcgaggtcctgaaagatattgagacggcctgcaagcttctgaacatcacagcagaccctggggac
tggagccctggtaacgtgcagaagtggctttatggacagaacaccagtaccggctgcctccagcaggcaaggccttccaggagctgggcggtaagg
agctgtgcgccatgtccgaggaacagttccgtcagcgtgcacccttgggtggggatgtactgcatgcccacctggacatctggaagtcagcggcctgg
atgaaggagaggacctcgcctgggacccttcactactgcgcctccaccagcgaggagggctggacggatggtgaggtggactcgtcgtgctccggg
cagcccattcacctgtggcagttcctgaaagaactgctgctcaagccccacagctatggccgcttcatccgctggctcaacaaggagaaaggcatcttc
aaaattgaggactcagcacaggtggcccgactgtggggtgtgcgcaagaaccggccagccatgaactatgataaactaagccgctccatccgccagt
attacaagaagggcatcattcgtaaacccgacatctctcagcgccttgtctaccaatttgtgcatccagtctgagagccacagagaccagaggcctacaa
cctgccccaggcagccactctctggttggcctggtcctctctgctcactctgaattcaggggctgctggtatcccagaacccaaggtcccagatagacag
ccactgatctagggatacacatgagctctctgggtcatacacaggccccaggaagatcgagggagctagttcagcacacagggactggaccaagtca
gctcaccggacagtgatgtcactggtctctgctcctgccacaatcctgtaccatatctggcatggtgctaagagatgtctgtaccctgcgttgggaagcca
ggggtgccctggggatggataataaagacgtaagataactg

SEQ ID NO:4

55

MGSASPGLSNVSPGCLLLFPDVAPRTGTEKAASGAMGPEKQEWSPSPPATPEQGLSAFYLSYFN
MYPDDSSWVAKVPEARAGEDHPEEPEQCPVIDSQASGSTLDEHSLEQVQSMVVGEVLKDIETA

CKLLNITADPGDWSPGNVQKWLLWTEHQYRLPPAGKAFQELGGKELCAMSEEQFRQRAPLGG
DVLHAHLDIWKSAAWMKERTSPGTLHYCASTSEEGWTDGEVDSSCSGQPIHLWQFLKELLLKP
HSYGRFIRWLNKEKGIFKIEDSAQVARLWGVRKNRPAMNYDKLSRSIRQYYKKGIIRKPDISQR
LVYQFVHPV

SEQ ID NO:5

cgggtcgacccacgcgtccgcccacgcgtccggcggagcttctgggttgcgggccgaaacggcaagcggatggagggcgctcgaacggccaggt
gtcgtgattaaattagtcagccctcagagacaggcgtcctacctcctttatccagacctcaaaagccccgttgtgcacccgtggtggcttcttcaccttccct
gtttcgtcctccactgtatggcccagacatgagtggtcccctagaaggggccgatggggggaggagaccccaggcccggagaacctttttgtcctggag
gagtcccatcccctggggccccgcagcaccggccttgtccaggccccagcctggctgatgacactgatgcaaacagcaatggctcaagtggcaatga
gtccaacggacccgagtccaggggcgcatctcagcggagttctcatagttcctcttctggcaatggcaaggactcagctctgctggagaccactgaga
gcagcaagagtacaaactcacagagcccatcccacccagcagctccattgcctacagcctcctgagtgcgagctcagagcaggacaacccatctac
cagtggctgcagcagtgaacagtcagctcgagccaggacccagaaagaactcatgactgcacttcgggagctcaaacttcgactgccaccagagcgt
cggggcaagggccgctctgggaccttggccacactgcagtacgctctggcctgtgtcaagcaggttcaggctaaccaggaatattaccagcagtgga
gtctggaggagggtgagccttgtgccatggacatgtctacttacaccctggaggaattggagcatatcacatccgaatacacacttcgaaaccaggaca
ccttctctgtggctgtgtccttcctgacaggccggattgtctatatttcggagcaggcaggtgtcctgctgcgttgcaaacgggatgtgtttcgggggtgccc
gcttctcagagctcctggctccccaggatgtgggtgtcttctatggctctactacaccatctcgactgcccacctggggcactggcacctctgcaggttca
ggtctcaaggacttcacccaggaaaagtctgtcttctgccgaatcagaggaggtcctgaccgggatccagggcctcggtaccagccattccgcctaac
cccatatgtgaccaagattcgggtctcagatggagccccctgcacagccgtgctgcctactcattgccgagcgcatccactctggttatgaagctccccgg
atccctcctgacaagaggatcttcaccacccgacacacaccaagctgcctcttccaggatgtagatgaaagggctgccccactgctgggttaccttcccc
aggatctcctggggggctccagtacttctctttctacatcctgaggaccgacccctcatgctggccattcataagaagatactgcagctggcaggccagcc
ctttgaccattcccctattcgcttctgtgctcggaacggggaatatgtcaccatggacaccagctgggccggttttgtgcacccctggagccgcaaggtg
gctttcgtgttgggtcgccataaagtgcgcacggcacccctgaatgaggacgtcttcactcccccagcccccagcccagctccgtccctggactctgat
atccaggagctctcagagcagatccatcgattgctgctgcagcctgtgcacagctccagccccacggggctctgtggagttggccctctgatgtcccct
ggtcctctacacagcccctggctcctccagtgatagcaatggggggggacgctgaggggccctgggcctcctgctccagtgactttccagcagatctgtaa
ggatgtgcatctggtaaagcaccagggacaacagctcttcattgaatctcgggccaagcccccaccccggccccgcctccttgctacaggtacattcaa
agccaaagtccttccctgccagtccccaaaccccgaactggaggtggccccagttcctgaccaagcctcgttagccttggcccctgaggagccagag
aggaaagaaacctctggctgttcctaccagcagatcaactgcctggacagcatcctcaggtatttggagagctgcaacattcccagtacaaccaagcgt
aaatgtgcctcctcctcctcctacactgcctcttcagcctctgatgatgacaagcagagggcaggtccagttcctgtggggggccaagaaagatccgtcgt
cagcaatgctgtctggggaggggcaactcctcggaaggagccagtggtgggaggcaccctgagcccgctcgccctggccaataaggcagagag
cgtggtgtccgtcaccagtcagtgtagcttcagctccaccatcgtccatgtgggagacaagaagcccccggagtcggacatcatcatgatggaagacct
gcctggcctggcccctggcccagcccccagtccggccccagcccacagtagcccctgacccaaccccagatgcttatcgcccagtgggtctgac
caaggccgtgctgtccctgcacacacagaaggaagagcaagccttcctcaaccgcttcagagatcttggcaggcttcgtggacttgacacctcttctgtg
gcccctcagcccctggctgccaccatggccccattcccctggtcgccgacaccactgccgatctaaagcaaagcgttcccgccaccaccaccacc
agaccccccggcccgaaactccctgctatgtctcccatccttcacctgtgccctcttctggaccctggccacccccaccagccacgaccccttccag
caatggtccagccctacccactcccagtattctcccctcgaggaggacccccagcccttcccctgccctacatctgtgtcccctgctaccttcccttctc
cctagtgaccccaatggtggccttggtgctccctaactatctattccctaccccacctagttatccatatggggtgtcccaggcccctgttgagggccac
ccacgcctgcttccactcgccctctccatccctgcccccaccacctctcagccccccccaccgcccagactccccactgttcaactcgagatgcagct
ccccactccagctcaatctgctgcagcttgaggagtcccccgcacgaggggggcgctgctgcaggaggcccaggaagcagtgctgggcccctg
cctcccagtgaggagactgctgagccagaggccagattggtggaggttactgagtcgtccaatcaggatgcactttcaggctccagcgacctgctgga
gctactgctccaagaagactctcgctcgggcacaggctccgcagcctcaggctccctgggctctggcctgggctctgggtctggttcaggatcccacg
aaggggggaagcacctcagccagcatcacccgcagcagtcagagcagccatacaagcaagtactttggcagcatcgactcttccgaggctgaagctg
gggctgctcgggccaggactgagcctggggaccaggtcattaagtgtgtgctccaggaccccatcggctgctcatggccaatgccgaccagcgtgt
catgatgacataccaggtgccgtccagggatgcagcctctgtgctgaagcaagaccgggagaggctccgggccatgcagaaacagcagccacggtt
ctcagaggaccagaggcgggaactgggtgctgtgcactcctgggtccggaagggccagctgcctcgggcccttgatgtgatggcgtgtgtggactgt
ggcagcagcgttcaagatcctggccactctgatgacccgctcttctcagaactggatggattggggctggagcccatggaagagggtggaggcgagg
gtggtgggtgtggtgttggcggtggtggggtgatggtggtgaggaggcccagacccaaattggggctaagggttcaagctctcaggactctgccat
ggaggaagaagagcaaggtgggggctcatccagcccagctttacctgcagaagaaaacagcaccagctagatccattttggggccgcttacagcagt
ctaatgagaggcttcctttcgaccatgttggggttcttataactcaagatacagctggaccaaccaataggaaactgccccagcttctcccaacatagggg
gctggacccccattaccagcccaggcacaggagctgcctctagcttcttagcagagtggaagttctcagcccccatttggaggattgtccacgcccgtcc
cactgaggagacgggcgggtcttcggttaaggttgctgacaagctgctgaagtggtcgtgtccaaatcccagctgagcctgagtcccagtcgcagggtt
ggggctgcacttatttatttgggagagacagctcactctcccacctcaccccaagatgggaggaggggaacctgggatctgtgtaggatccaggtccgt
gaaccccctagctgctccagggtggggggaggttggtggaccatggagtccctggtgctgcccctcaggtgggacccaggtgttctcagctctaccctcta
ccaatgacatttgtgtttttgatattgtgtctgttatttttttttttaatacaaaatgacaaaatgaaaaaccaaaaa

SEQ ID NO:6

MSGPLEGADGGGDPRPGEPFCPGGVPSPGAPQHRPCPGPSLADDTDANSNGSSGNESNGPESRG
ASQRSSHSSSSGNGKDSALLETTESSKSTNSQSPSPPSSSIAYSLLSASSEQDNPSTSGCSSEQSAR
ARTQKELMTALRELKLRLPPERRGKGRSGTLATLQYALACVKQVQANQEYYQQWSLEEGEPC
AMDMSTYTLEELEHITSEYTLRNQDTFSVAVSFLTGRIVYISEQAGVLLRCKRDVFRGARFSELL
APQDVGVFYGSTTPSRLPTWGTGTSAGSGLKDFTQEKSVFCRIRGGPDRDPGPRYQPFRLTPYV
TKIRVSDGAPAQPCCLLIAERIHSGYEAPRIPPDKRIFTTRHTPSCLFQDVDERAAPLLGYLPQDL
LGAPVLLFLHPEDRPLMLAIHKKILQLAGQPFDHSPIRFCARNGEYVTMDTSWAGFVHPWSRKV
AFVLGRHKVRTAPLNEDVFTPPAPSPAPSLDSDIQELSEQIHRLLLQPVHSSSPTGLCGVGPLMSP
GPLHSPGSSSDSNGGDAEGPGPPAPVTFQQICKDVHLVKHQGQQLFIESRAKPPPRPRLLATGTF
KAKVLPCQSPNPELEVAPVPDQASLALAPEEPERKETSGCSYQQINCLDSILRYLESCNIPSTTKR
KCASSSSYTASSASDDDKQRAGPVPVGAKKDPSSAMLSGEGATPRKEPVVGGTLSPLALANKA
ESVVSVTSQCSFSSTIVHVGDKKPPESDIIMMEDLPGLAPGPAPSPAPSPTVAPDPTPDAYRPVGL
TKAVLSLHTQKEEQAFLNRFRDLGRLRGLDTSSVAPSAPGCHHGPIPPGRRHHCRSKAKRSRHH
HHQTPRPETPCYVSHPSPVPSSGPWPPPPATTPFPAMVQPYPLPVFSPRGGPQPLPPAPTSVSPAT
FPSPLVTPMVALVLPNYLFPTPPSYPYGVSQAPVEGPPTPASHSPSPSLPPPPLSPPHRPDSPLFNS
RCSSPLQLNLLQLEESPRTEGGAAAGGPGSSAGPLPPSEETAEPEARLVEVTESSNQDALSGSSD
LLELLLQEDSRSGTGSAASGSLGSGLGSGSGSGSHEGGSTSASITRSSQSSHTSKYFGSIDSSEAEA
GAARARTEPGDQVIKCVLQDPIWLLMANADQRVMMTYQVPSRDAASVLKQDRERLRAMQKQ
QPRFSEDQRRELGAVHSWVRKGQLPRALDVMACVDCGSSVQDPGHSDDPLFSELDGLGLEPM
EEGGGEGGGCGVGGGGGDGGEEAQTQIGAKGSSSQDSAMEEEQGGGSSSPALPAEENSTS

SEQ ID NO:7

gaattcggcacgagcagcgagacgccgcgcacggtgcttccccagtggagccaatcggctaacccgcgctccggcagagtccttggcgctcgccc
gccggcgggacagaccacccgcctctggccgctctctggaccctggccgccccgagcgaagactggagcaaatgatgcttcaacatccaggcca
ggtctctgcctcagaagtcagtgcgaccgccattgtccctgcctctcacctcctgggtcactggtatttgaggattttgctaacctgacacccttgtcaag
gaagagctgagattcgccatccagaataaacacctctgccatcggatgtcctctgcgctggagtcagttaccgtcaacaacagacccctggagatgtca
gtcaccaagtctgaggcggcccctgaagaagatgagaggaaaaggaggcggcgagaaagaaataaaattgctgctgccaagtgtcgaaacaagaa
aaaggagaagacagagtgcctgcagaaagagtcagagaaactggagagtgtgaatgctgagctgaaggcccagattgaggagctgaagaatgaga
aacagcatttgatatacatgctcaacctgcaccggcccacctgtatcgtccgggctcagaatggacggacaccggaagacgagaggaacctctttatcc
aacagataaaagaaggaacattgcagagctaagcagaggtggcacggaggcaattggggagttcttactgaatcctccttttccaccccacaccctgaa
gccattggaaaactggcttcctgtgcacttctagaatcccagcagccaagagccgttggggcaggagggcctgtggtgacctactgcattgacccactc
tgcccccgagtgaaccgtggagcaggcaggagcatccttgtctcaccaattccaggattaggcctatcatcccggccagtctcagatgacctagctg
gccccaggctggggtcctatgcaaagcaggatcccactaatgggattcaggcagaagtgtctaccttgataggtggggtgggaccacatcctccactgt
ggctgacaacgcccttccaagggaatatggaatgagaacattcattattgaggttgtccaatggccagggtatgctttctagaaaatatgctgttctgtccc
agaatgactgtgcatagggtatccgttcagagcctggtgttgtgctatttagatgttgtcttgcacaacattggcatgattttccgggagtttcatcagatct
gatttctgagagtctggggatctgccatggtggaaagtgcccctcaaaagcatttgtgtggccacatgaactggctggcaccaggggagtgaaactggc
tgatgaccagctgagccactttgtgccaacagaggatggacgacacctttccctgtacccactgcagaggaagaaccctgggcacagcagcttgtcct
tggctacaaactgttacaacgtcacacaatgaaggcacaaagtccaactttcaaagggtgtaggactccatactcagtgacagggcaggaagagccaa
agataaccacagccacagcctgtggagaccagggttggaagccaggtgcagggccaggcatctgcattgtgggatgttaatggcacttttgtcttgtag
ctattttgagatgtggtccagagcatttcagctgggagatctccctctggccaccaggactctggctactgttaaaatcctgatgtttctgtggaatcctcagt
gtttaatcccactcaatagtatcattacagttttctgtaagagaaatattacttatttatcccagtattcctagcctgtcaacataataaatatcggaacaaaac
ctggta

SEQ ID NO:8

MMLQHPGQVSASEVSATAIVPCLSPPGSLVFEDFANLTPFVKEELRFAIQNKHLCHRMSSALESV
TVNNRPLEMSVTKSEAAPEEDERKRRRERNKIAAAKCRNKKKEKTECLQKESEKLESVNAEL
KAQIEELKNEKQHLIYMLNLHRPTCIVRAQNGRTPEDERNLFIQQIKEGTLQS

SEQ ID NO:9

cccagagataagctgacgctgggcaaacccctggggggaaggttgcttcgggcaagtagtcatggctgaagcagtgggaatcgataaagacaaaccc
aaggaggcggtcaccgtggcagtgaagatgttgaaagatgatgccacagagaaggacctgtctgatctggtatcagagatggagatgatgaagatgat
tgggaaacataagaacattatcaacctcctggggggcctgcacgcaggatggacctctctacgtcatagttgaatatgcatcgaaaggcaacctccggga
atacctccgagcccggaggccacctggcatggagtactcctatgacattaaccgtgtccccgaggagcagatgaccttcaaggacttggtgtcctgcac

ctaccagctggctagaggcatggagtacttggcttcccaaaaatgtatccatcgagatttggctgccagaaacgtgttggtaacagaaaacaatgtgatg
aagatagcagactttggcctggccagggatatcaacaacatagactactataaaaagaccacaaatgggcgacttccagtcaagtggatggctcctgaa
gccctttttgatagagtttacactcatcagagcgatgtctggtccttcgggggtgttaatgtgggagatctttactttaggggggctcaccctacccagggattc
ccgtggaggaactttttaagctgctcaaagagggacacaggatggacaagcccaccaactgcaccaatgaactgtacatgatgatgagggattgctgg
catgctgtaccctcacagagacccacattcaagcagttggtcgaagacttggatcgaattctgactctcacaaccaatgaggaatacttggatctcaccca
gcctctcgaacagtattctcctagttaccccgacacaagtagctcttgttcttcaggggacgattctgtgtttctccagaccccatgccttatgaaccctgtct
gcctcagtatccacacataaacggcagtgttaaaacatga

SEQ ID NO:10

PRDKLTLGKPLGEGCFGQVVMAEAVGIDKDKPKEAVTVAVKMLKDDATEKDLSDLVSEMEM
MKMIGKHKNIINLLGACTQDGPLYVIVEYASKGNLREYLRARRPPGMEYSYDINRVPEEQMTF
KDLVSCTYQLARGMEYLASQKCIHRDLAARNVLVTENNVMKIADFGLARDINNIDYYKKTTN
GRLPVKWMAPEALFDRVYTHQSDVWSFGVLMWEIFTLGGSPYPGIPVEELFKLLKEGHRMDKP
TNCTNELYMMMRDCWHAVPSQRPTFKQLVEDLDRILTLTTNEEYLDLTQPLEQYSPSYPDTSSS
CSSGDDSVFSPDPMPYEPCLPQYPHINGSVKT

SEQ ID NO:11

acccacgcgtccggccggtttcactgctcccctcagtctcttttgggctctttccgggcatcgggacgatgaccgtcaaagccgaggctgctcgaagca
cccttacctactccagaatgaggggaatggtagcgattctcatcgctttttatgaaacagagaaggatgggcctgaacgatttattcagaagattgccagc
aacacctatgcatgcaaacacgctgaagttcagtccatttgaaaatgtcccatcctcaggagccggagcttatgaacgctaaccctctcctccgccaag
tccctctcaacaaatcaacctgggtccgtcctccaaccctcacgccaaaccctccgactttcacttcttgaaagtgatcggaaagggcagtttggaaagg
ttcttctggctaggcacaaggcagaagaagtattctatgcagtcaaagttttacagaagaaagccatcctgaagaagaaagaggagaagcatattatgtc
agagcggaatgttctgttgaagaatgtgaagcacccttcctggtgggccttcacttctcattccagaccgctgacaaactctactttgtcctggactacatt
aatggtggagagctgttctaccatctccagagggagcgctgcttcctggaaccacgggctcgattctacgcagctgaaatagccagtgccttgggctat
ctgcactccctaaacatcgtttatagagacttaaaacctgagaatattctcctagactcccaggggcacatcgtcctcactgactttgggctctgcaaagag
aatattgagcataacgggacaacatctaccttctgtggcacgcctgagtatctggctcctgaggtcctccataagcagccgtatgaccggacggtggact
ggtggtgtcttggggctgtcctgtatgagatgctctacggcctgccccccgttttatagccggaacacggctgagatgtacgacaatattctgaacaagcct
ctccagttgaaaccaaatattacaaactcggcaaggcacctcctggaaggcctcctgcagaaggaccggaccaagaggctgggtgccaaggatgact
ttatggagattaagagtcatattttcttctctttaattaactgggatgatctcatcaataagaagattacaccccccatttaacccaaatgtgagtgggcccagtg
accttcggcactttgatcccgagtttaccgaggagccggtccccagctccatcggcaggtccctgacagcatccttgtcacggccagtgtgaaggaag
cagcagaagccttcctcggcttctcctatgcacctcctgtggattccttcctctgagtgctcccgggatggtctgaaggacttcctcagcgtttcctaaagt
gttttccttaccctttggtggaggttgccagctgacagaacatttaaaagaatttgcacacctggaagcttggcagtctcgcctgcccggcgtggcgcga
cgcagcgcgcgctgcttgatgggagctttccgaagagcacacccctcctctcaatgagcttgtgaggtcttcttttcttctcttccttccaacgtggtgctagc
tccaggcgagcgagcgtgagagtgccgcctgagacagacaccttggtctcagttagaaggaagatgcaggtctaagaggaatccccgcagtctgtct
gagctgtgatcaagaatattctgcaatgtgccttttctgagatcgtgttagctccaaagctttttcctatcgcagagtgttcagtttgtgtttgtttgtttttgtttgt
tttgtttttcccttggcggatttcccgtgtgtgcagtggcgtgagtgtgctatgcctgatcacagacggtttgttgtgagcatcaatgtgacacttgcaggac
actacaatgtgggacattgtttgttcttccacatttggaagataaatttatgtgtagactgttttgtaagatatagttaataactaaaacctattgaaacggtctt
gcaatgacgagcattcagatgcttaaggaaagcattgctgctacaaatatttctattttttagaaagggtttttatggaccaatgccccagttgtcagtcaaag
ccgttggtgtttcattgtttaaaatgtcacctataaaacgggcattatttatgtttttttttcccttttgttcatattcttttgcattcctgattattgtatgtatcgtgtaaa
ggaagtctgtacattgggttataacactagatatttaaacttacaggcttatttgtaaaccatcattttaatgtactgtaattaacatgggttataatatgtacaatt
cctcctccttaccacacaacttttttgtgtgcgataaaccaattttggtttgcaataaaatcttgaaacct

SEQ ID NO:12

MTVKAEAARSTLTYSRMRGMVAILIAFMKQRRMGLNDFIQKIASNTYACKHAEVQSILKMSHP
QEPELMNANPSPPPSPSQQINLGPSSNPHAKPSDFHFLKVIGKGSFGKVLLARHKAEEVFYAVKV
LQKKAILKKKEEKHIMSERNVLLKNVKHPFLVGLHFSFQTADKLYFVLDYINGGELFYHLQRER
CFLEPRARFYAAEIASALGYLHSLNIVYRDLKPENILLDSQGHIVLTDFGLCKENIEHNGTTSTFC
GTPEYLAPEVLHKQPYDRTVDWWCLGAVLYEMLYGLPPFYSRNTAEMYDNILNKPLQLKPNIT
NSARHLLEGLLQKDRTKRLGAKDDFMEIKSHIFFSLINWDDLINKKITPPFNPNVSGPSDLRHFDP
EFTEEPVPSSIGRSPDSILVTASVKEAAEAFLGFSYAPPVDSFL

SEQ ID NO:13

gcagggcgggtgagagcgccgtgaaagccgcggaacgccgtgcacctccgcgactctactacggcaagctagtccggacgggtcgtcgtccccgc
gcgccaccagcccttggtgaaacgacagggagcgtccggcttccccagcaccgccctgcgagactcaaaacagccacaccgcaaagcgagcctcg
ggcggaaggaggcggagcttcaggcggccccgcctccgcggaaggatacacatctccgtggtccaaaaccccggggcgaggcggccggggcgt
gtgagctgctcggccagctgccgtctacgcgctttcgcgcggccaccgggcaactgcgccgcgcggctgccccgctgagcgctcggcctcggggc
cgtgggatccgccgcgctgtctgcggtcaggaagaccgccctcccgcgtccttgccggacgggtcagaggcggcaccgcacgcgaggccacccg
cgatgctgctgtccaagttcggctccctggcgcacctctgcgggcctggcggcgtggaccacctcccagtgaagatcctacagccagccaaggctga
caaggagagcttcgagaaggtgtaccaggtgggcgccgtgctgggcagcggcggcttcggcacggtctacgcgggcagccgcatcgccgacgga
ctcccggtggctgtgaagcacgtggtgaaggagcgggtgaccgagtggggcagtctcggcggagtggccgtgcccctggaggtggtgctgctgcg
caaggtgggcgcggcgggcggcgcgcgcggcgtcatccgcttgctggactggttcgagcggcccgacggcttcttgttggtgctggagcgacccga
gccggcacaggacctcttcgacttcatcactgaacgaggcgccctggacgagccgctggcgcgtcgcttcttcgcgcaggtgcttgccgctgtgcggc
actgccacaattgtggggtcgtgcaccgcgacatcaaggacgagaacctgctggtggacctgcgctcgggagagctgaagctcatcgacttcggctc
gggcgcggtgctcaaggacacggtctacactgactttgatggcacccgtgtgtacagccccccagagtggatccgatatcaccgatatcacggcggt
ctgccactgtgtggtctctgggtgtactgctctacgacatggtgtgtggggacattcccttgagcaggatgaggagatcttgcgcggcaggctcttttcc
ggaggagggtctcccagagtgccagcagcttattgagtggtgtctctccctgaggccctcagagaggccctccctggaccaaattgctgcccacccc
tggatgctggggacagaggggagcgttccagagaactgtgaccttcggctttgtgccctggatactgacgacggagccagtaccacttccagcagtga
gagcttgtgaggaggagaaggggcctgggctcggcctagccagcgctctcccagaattgaacactttctgcctgggatgtctgctgcaaaagcagtga
cctctgacccctggtgacctttgctctcggcaccgggcctgtttcctttgctttgagtgcctttttgaacgctgctccacagggcctgggtttcttgagctctt
ctgtccaaagatggctgagggctaagcaaggtcctgccctgggtggatacttgaaccagagatcccgaccctgctgctccatctcaggaggcagcctt
cctgaccaagtgtgtttgacatggagcgccctgtggtgcccacctccaaccctccagtctcctggtgttcatctgggcatgtctgcacaagcaatgcaac
gctgggccactgctgcccgtctgcctccccggcacggcacggctccgcacgcaacctaagcgtgccaccacggtctcttatttatggtgtgatcaccct
ggagggcgcccccgccctgctggggctatttattgtttaatttatttgctgaggttcctccaagcaaccaccttctccaggcccctggggtgttgaaagtca
aatgtggctgttgagtccacagacccccatcctaattcctgcacctggaggagttccccaaccccccgtgtttgcgggaggaagcatttgtacagtggcta
atttaaggggagtgggagaccctgtcaccctgagcactctgcgctggggagggggtttaaattattgaccttgtacagtctgcttgctggctctgaaagctg
gggttgggggacagagtctcaagcccttaatttattttagcagctgtgtttctgtgaccctggtgtgactaagcatcaggggtggggttgtataagttcaaa
agtgtgaaatgtctgaagatcatattttttatacaggtatttcaattaaatgtttggtatataatggaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa

SEQ ID NO:14

MLLSKFGSLAHLCGPGGVDHLPVKILQPAKADKESFEKVYQVGAVLGSGGFGTVYAGSRIADG
LPVAVKHVVKERVTEWGSLGGVAVPLEVVLLRKVGAAGGARGVIRLLDWFERPDGFLLVLER
PEPAQDLFDFITERGALDEPLARRFFAQVLAAVRHCHNCGVVHRDIKDENLLVDLRSGELKLID
FGSGAVLKDTVYTDFDGTRVYSPPEWIRYHRYHGRSATVWSLGVLLYDMVCGDIPFEQDEEIL
RGRLFFRRRVSPECQQLIEWCLSLRPSERPSLDQIAAHPWMLGTEGSVPENCDLRLCALDTDDG
ASTTSSSESL

SEQ ID NO:15

cctgggccccgccgcggacgcgcggagccgcctgggccgcgccggaggagggcggggagaggaccatgtgaatgtgctccggagctgagcgc
caagccaagcagtgtttgaaaggaacaggatgctgatctaatcgtggcaaaaagtcagtccgaccgctggtttcgaagacatgtggtgtatataaagttt
gtgatagttggtggaaatttgggagcttggataatgggctgtgtgcaatgtaaggataaagaagcagcgaaactgacagaggagagggacggcagcc
tgaaccagagctctgggtaccgctatggcacagaccccaccccctcagcactacccccagcttcggcgtgacctccatcccgaactacaacaacttccac
gcagctggggccagggactcaccgtctttgggggtgtgaactcctcctctcacactgggaccctacgcacgagaggagggacaggagtgacactg
tttgtggcgctttatgactatgaagcacggacggaagatgacctgagttttcacaaaggagaaaaatttcaaatattgaacagctcggaaggagattggtg
ggaagcccgctccttgacaaccggggaaactggttacattcccagcaattacgtggctccagttgactccatccaggcagaagagtggtactttggaaa
acttggccgcaaagatgctgagagacagctcctgtcctttggaaacccaagaggtacctttcttatccgcgagagccaaaccaccaaggtgcctactc
actttccatccgtgattgggatgatatgaaaggggaccacgtcaaacattataaaaatccgcaagcttgacaatggtggatactatatcacaacgcgggcc
cagtttgaaacacttcagcaactggtacagcattactcagagaaagctgatggtttgtgtttaacttaactgtggtttcatcaagttgtaccccacaaacttct
ggattggctaaagatgcttgggaagttgcacgtgactcgttgttctggagaagaagctggggcagggggtgtttcgctgaagtgtggcttggtacctgga
atggaaatacaaaagtagccataaagacccttaagccaggcaccatgtctccggagtccttcctggaggaggcgcagatcatgaagaagctgaagcat
gacaagctggtgcagctctacgcggtcgtgtctgaggagcccatttacatcgtcacggagtacatgagcaaaggaagtttgcttgacttcttaaaagatg
gtgaaggaagagctctgaagttgccaaaccttgtggacatggcggcacaggttgctgcaggaatggcttacatcgagcgcatgaattatatccacagag
atctgcgatcagcaaacattctagtggggaatggactaatttgcaagattgctgactttggattggctcggttgattgaagacaatgaatacacagcaaga
caaggtgcgaagtttcccattaagtggacagcccccgaagcggccctgtatggaaggttcacaatcaagtctgacgtatggtcttttggaatcttactcac
agagctggtcaccaaaggaagagtgccatacccaggcatgaacaaccgggaggtgctggagcaggtggagagaggctataggatgccctgcccac
aggactgcccgatctccctgcacgagctcatgatccactgctgaaaaaggatccggaagagcgcccgaccttcgagtacttgcagggcttcctggag
gactactttacggccacagagcccagtatcagcccggtgaaaacctgtgagagcctgcgcttcagacgcctcttcccgaggcctccctacccctcccc
attagcttccaattctgtagccagctgccccagagcaggagaaccgtccaggatcagattgcatgtgactcttgaagctgaacttccacggccctcattaa

tgacacttgtcccccagtccgaacctcctctgtgaaccatctgagacagaagcgtgttatttctcagacttggaaatgcattgtatcgatgttatgtcaaagg
ccaaacctctgttcagtgtaaatagctgctcctgtgccaacaatcccagtgctttccttttttaaaaaagaaaaagcaaatcctatgtgattttaactctgatttc
acctgattcaactaaaaaaaaaaaagtattattttccaaaagtggcctctttgtctaaaacaataaaattttttttcatgttttaacaaaaaaaaaaaaaaaaaaa
aaaaa

SEQ ID NO:16

MGCVQCKDKEAAKLTEERDGSLNQSSGYRYGTDPTPQHYPSFGVTSIPNYNNFHAAGGQGLTV
FGGVNSSSHTGTLRTRGGTGVTLFVALYDYEARTEDDLSFHKGEKFQILNSSEGDWWEARSLT
TGETGYIPSNYVAPVDSIQAEEWYFGKLGRKDAERQLLSFGNPRGTFLIRESQTTKGAYSLSIRD
WDDMKGDHVKHYKIRKLDNGGYYITTRAQFETLQQLVQHYSEKADGLCFNLTVVSSSCTPQT
SGLAKDAWEVARDSLFLEKKLGQGCFAEVWLGTWNGNTKVAIKTLKPGTMSPESFLEEAQIM
KKLKHDKLVQLYAVVSEEPIYIVTEYMSKGSLLDFLKDGEGRALKLPNLVDMAAQVAAGMAY
IERMNYIHRDLRSANILVGNGLICKIADFGLARLIEDNEYTARQGAKFPIKWTAPEAALYGRFTI
KSDVWSFGILLTELVTKGRVPYPGMNNREVLEQVERGYRMPCPQDCPISLHELMIHCWKKDPE
ERPTFEYLQGFLEDYFTATEPQYQPGENL

SEQ ID NO:17

ggacgtcagactagagagtagggagagagactggtgctcgagggacagggctagcccggacgcgtgtccgcgcctcggaggtggcaagtaggca
gtgtcgggtggcgaggcaacgatggagctcctgcggactatcacctaccagccggccgccggcaccaagatgtgcgagcaggctctgggcaaagc
ttgcggcggggactcaaagaagaagcgaccacagcagccttctgaagatgggcagccccaagcccaggtgacccccggcggccccgcaccaccat
caccaccattcccactcgggacccgagatctcgcggattatagtcgaccccacgacggggaagcgctactgccggggcaaagtgctgggcaagggt
ggatttgcaaagtgttacgaaatgacagatctgacaaacaacaaagtctacgctgcaaaaattattcctcacagcagagtagctaaacctcatcagaggg
aaaagatcgacaaagaaatcgagcttcacagactactgcaccataagcatgtcgtgcagttttaccactactttgaagacaaagaaaacatttacattctct
tggaatactgcagtagaaggtccatggctcacatcttgaaagcaagaaaggtgttgacagagccagaagtccgatactacctcaggcagattgtgtcag
gactcaagtatcttcacgaacaagaaatcttgcacagggatctcaagctagggaactttattattaatgaagccatggagctgaaggtgggagactttggt
ttggcagccagactggaaccactggaacacagaaggagaacaatatgtggaaccccaaattatctctcccccgaagtcctcaacaaacaaggacacg
gctgtgaatcagacatctgggccttaggctgtgtaatgtatacgatgctgctaggaagacctccattcgaaaccacaaatctgaaagaaacgtacaggtg
cataagggaagcaaggtataccatgccgtcctcattgctggcccctgctaagcacttgatagctagcatgctgtccaaaaacccagaggaccgcccca
gtttggatgacatcattcggcatgacttcttcctgcagggtttcactccggacagactctcttccagctgttgccacacagttccagatttccacttgtcaagc
ccagccaagaatttctttaagaaagccgcagccgctctttttggtggcaagaaggacaaagcaagatataacgacacacacaataaggtgtctaaggaa
gatgaagacatttacaagcttcggcatgatttgaagaaagtgtcgataacccagcagcctagcaaacacagagcagacgaggagcccagccgcctc
ccactactgttgccagatctggaacgtccgcagtggaaaacaaacagcagattggggatgcaatccggatgatagtcaggggggactctcggcagctg
cagcagcagcagcgaatgccttgaagacagcaccatgggaagtgttgcagacacagtggcaagagtccttcgaggatgtctagaaaacatgccgga
agctgactgtatccccaaagagcagctgagcacgtcctttcagtgggtcaccaagtgggtcgactactccaacaaatatggctttgggtaccagctctcg
gaccacactgttggcgtcctttcaacaacggggctcacatgagcctccttccggacaaaaagacagttcactattatgcggaacttggccaatgctctgtt
ttcccagcaacagatgcccctgaacaatttattagtcaagtgacggtgctgaaatactttctcattacatggaggagaacctcatggatggtggtgatctcc
cgagtgttactgacattcgaagacctcggctctacctcctgcagtggttaaagtctgataaagccttaatgatgctcttcaatgacggcacatttcaggtgaa
tttctaccacgatcatacaaaaatcatcatctgtaaccagagtgaagaataccttctcacctacatcaatgaggacaggatctctacaactttcagactgacg
actctgctgatgtctggctgttcgttagaattgaaaaatcgaatggaatatgccctgaacatgctcttacagagatgtaactgaaaacattattattattattatt
ataattatttcgagcggaacctcatgggactcttttccactgtgagatcaacagggaagccagcggaaagatacagagcatgttagagaagtcggacagg
tggtggtacgaatacaattcctctgtggcctgctggactgctggaaccagaccagcctaaggtgtagagttgactttggacaatcctgagtgtggagccg
agtgcagtttccctgagatacctgtcgtgaaaaggtttatgggacagttttcagaaagatgcattgactctgaagttctctctgttgagagcgtcttcagttg
gaagacttggaactgtaatacacttcctgaaggggagggagaagggaggttgctcccttgctgtttaaaggctacaatcagagcagcttttggctgctt
aactgtgaactatggccatacatttttttttttttggttattttgaatacacttgtggttggaaaagtgcattccttgttaataaacttttattattacagcccaag
agcagtatttattatcaagatgttctcttttttatgttgaccatttcaaactcttggcaataaagagtatgacatagaaaaaaaaaaaaaaaaaaaaaaaaaaa

SEQ ID NO:18

MELLRTITYQPAAGTKMCEQALGKACGGDSKKKRPQQPSEDGQPQAQVTPAAPHHHHHHSHS
GPEISRIIVDPTTGKRYCRGKVLGKGGFAKCYEMTDLTNNKVYAAKIIPHSRVAKPHQREKIDK
EIELHRLLHHKHVVQFYHYFEDKENIYILLEYCSRRSMAHILKARKVLTEPEVRYYLRQIVSGLK
YLHEQEILHRDLKLGNFIINEAMELKVGDFGLAARLEPLEHRRRTICGTPNYLSPEVLNKQGHGC
ESDIWALGCVMYTMLLGRPPFETTNLKETYRCIREARYTMPSSLLAPAKHLIASMLSKNPEDRPS
LDDIIRHDFFLQGFTPDRLSSSCCHTVPDFHLSSPAKNFFKKAAAALFGGKKDKARYNDTHNKV
SKEDEDIYKLRHDLKKVSITQQPSKHRADEEPQPPPTTVARSGTSAVENKQQIGDAIRMIVRGTL

GSCSSSSECLEDSTMGSVADTVARVLRGCLENMPEADCIPKEQLSTSFQWVTKWVDYSNKYGF
GYQLSDHTVGVLFNNGAHMSLLPDKKTVHYYAELGQCSVFPATDAPEQFISQVTVLKYFSHYM
EENLMDGGDLPSVTDIRRPRLYLLQWLKSDKALMMLFNDGTFQVNFYHDHTKIIICNQSEEYLL
TYINEDRISTTFRLTTLLMSGCSLELKNRMEYALNMLLQRCN

SEQ ID NO:19

aacttagctggactgcagccttctccgctggaactcgccaagccagctgatttccccatccaaagccatgaagagcggcgtatgtctgtgcgtggtgatg
gcagtcctagctgctggcgccctggcgcagccggtagtccctgcagaagctacggacccccgtggagcagcgggcgcaagaggcgccccgaaggc
agctgcgggctgtgctccggacggacggcgagccccgagcgcgcctgggcgcactgctagcgcgatacatccagcaggtccgcaaagctccttct
ggccgcatgtccgttcttaagaacctgcagagcctggacccccagccatagaataagtgaccgggactacatgggctggatggattttggccggcgcag
tgccgaggactacgaatacccatcgtagtgggccagcgtcttggccctgcttggaggaggtggaatgaggaaacaaccacacatacgacccctcgcc
tctaatgtctgacgttttgagtatctatttattaagtccccaatgtgaaatctgtccagagtgtgcaatgcagccacatctcagcctagctgtgtggtcggaag
gcagtgtttccttcagtgactcccagacctaatgttgctatgctattaaagagatttccttctgccccccc

SEQ ID NO:20

MKSGVCLCVVMAVLAAGALAQPVVPAEATDPVEQRAQEAPRRQLRAVLRTDGEPRARLGALL
ARYIQQVRKAPSGRMSVLKNLQSLDPSHRISDRDYMGWMDFGRRSAEDYEYPS

SEQ ID NO:21

cttggtgacactagacagagcaactccagcgttaccgctcccgctcctggtttctcggcttctcatcgcagtcaatcttggactttggggttttgctactgtca
gaaggacttctttctgcttcaagtgcttgacaacgcacccctttatcagggtatcagagcatcgccacagaatgaagctggtttccatcaccctgatgttatt
gggttcactcgctttcctaggcgcggacactgcagggccagatactccttcgcagttccgaaagaagtggaataagtgggcgctaagtcgtgggaaga
gggaactacaagcatccagcagctaccctacgggactcgctgatgagacgacagttcctacccagactcttgatccattcctggacgagcagaacaca
actggccccctacaagccagcaatcagagcgaagcccacattcgtgtcaaacgctaccgccagagcatgaaccagggttcccgcagcaatggatgc
cgcttcgggacctgcacatttcagaaattggcccaccagatctaccagctaacagacaaagacaaggacggcatggctcccagaaacaagatcagcc
ctcaaggctatggccgccggcgccggcgttccctgctggaggtcctccggtcccggactgtggagtcctcccaggagcagacacacacagccccag
gcccctgggcgcacatctccagactcttaggatataggtgcgggtgacagcattgaacagtcgggcgagtatcccgttggcgcctgcggaatcagag
aacttcgcaccggggcggactgagacaatcctgcagagatctgcctggctgcccctaggggaggcagaggaacccaagaccaagccaggctcatg
ccagaaaccgagacttacaggctgatactctccgggcaggggtctgagccactgccttgcccgctcataaactggtttctcacggggcataagcctcatt
actacttgaactttcaaaacctagcgaggaacgtgcaatgcttgttgtccagccaaaggtaactatagtatttaagtttgttgctgtcaaggttttttttttttgta
acttcaaatatatagagatattttgtacgttatatattgtattaagggcattttaaagtgattatattgtcaccttcccctatttttaagacgtgaatgtctcagcaag
gtgtaaggttgtttggttccgtgtgtgtgtgtgtgtgtgtgtgtgtgtgtgtgtgtgtgtaaggtggagagcgcctgattatcgcctgtggatgaagaaaaaa
cattgtgtttcctataatctatttacataaaaatatgtgatctgggaaaaagcaaaccaataaactgtctcaatgctg

SEQ ID NO:22

MKLVSITLMLLGSLAFLGADTAGPDTPSQFRKKWNKWALSRGKRELQASSSYPTGLADETTVP
TQTLDPFLDEQNTTGPLQASNQSEAHIRVKRYRQSMNQGSRSNGCRFGTCTFQKLAHQIYQLTD
KDKDGMAPRNKISPQGYGRRRRRSLLEVLRSRTVESSQEQTHTAPGPWAHISRLFRI

SEQ ID NO:23

tcgagcggccgcccgggcaggtccaggatcaagagtcaccgcttcgcaagcactgcctggctccatcaggatccccgcaggctcagctccaaggca
ccgctcaccaggaaggcatcatgggcttcctgaagttctcccctttcctggttgtcagcatcttgctcctgtaccaggcatgcagcctccaggcagtgcctt
tgaggtcaatcttggaaagcagcccaggcatggccactctcagtgaagaagaagttgcctgctggctgcactggtgcaggactatatgcagatgaaa
gccaggagctggagcaggaggaagagcaggaggctgagggctctagcttggacagccccagatctaagcggtgtgggaatctgagtacctgcat
gctgggcacgtacacacaagacctcaacaagtttcacaccttcccccaaacttcaattgggg ttgaagcacctggcaagaaaagggatgtggccaagg
acttggagacaaaccaccaatcccattttggcaactaagctccttctctccttttctagtttccttcttgctttcttcctataacttgatgcatgtagttcctctctggt
tgctctccaggctattactggttgctttcctgaggcaaagaatggtatctgaaatccccagtgggtgaggagaaagtcccacaggctaaaagagaatcac
ccaggaagatggcagagagcaagggcacactcaggaagatggcagagagcaagggcagtcatctggcttcctagtagagcttctagtcttgcttctgg
aagtgttggttgtttgggaaataaaactattttttaaaaaaaaaaaaaaaaaaaa

SEQ ID NO:24

MGFLKFSPFLVVSILLLYQACSLQAVPLRSILESSPGMATLSEEEVRLLAALVQDYMQMKAREL
EQEEEQEAEGSSLDSPRSKRCGNLSTCMLGTYTQDLNKFHTFPQTSIGVEAPGKKRDVAKDLET
NHQSHFGN

5   SEQ ID NO:25

aaaggcagcctgataaagctccttgtgacaggctgtcttgccagtctcccagtatgctcctcttgctctgaagtgctccaggattgaaaccacagcttccca
aattagcctgggaagagtgtgcggacccagcagccttttaacccgcgtcagtgcctttgctatgttcaagactgctgttttggatggtgaatgctagctagc
actccatcgagacatgacagcaaaaaattctccaaaagaatttactgcttcggaatctgaggtttgcataaagactttcaaggagcagatgcgcttggaac
ttgagcttccaaagctaccaggaaacagacctacatctcccaaaatttctccacgcagttcaccaaggaattcaccatgcttttttcagaaagttgctggtga
ataaaagcatccgacagcggcgtcgcttcacggtggctcatacatgctttgatgtggaaaatggcccttctccaggtcggagcccactggaccctcaag
ccggctcttcgtcgggactggtacttcatgccgcctttcctgggcacagccagcgcagggagtcgttcctctacgatcttgacagcgactatgacttgtca
ccaaaagcgatgtccaggaactcatcacttcccagtgagcaacacggcgatgacctgattgtcactccttttgcccaggttcttgccagcttgcgaagtgt
aagaaacaacttcaccctgctgacgaaccttcatggagcgccgaacaagaggtcaccagcggctagtcaggctccagtctccagagtcagcctgcaa
gaggaatcatatcagaaactagcaatggagacgctggaggaactagactggtgcctagaccagctagagaccatccagacctaccgctctgtcagcg
agatggcttcaaacaagttcaaaaggatgctgaaccgggagctgacacacctctcagagatgagcagatcagggaaccaggtgtctgagtacatttca
aacacgttcttagacaagcagaacgatgtggaaatcccatctcccacgcagaaggacagggagaagaagaagaagcagcagctcatgacccagata
agtggagtgaagaaactgatgcacagctcaagcctgaacaacacaagcatctcacgcttcgggatcaacacggaaaatgaggatcatctagccaagg
agctggaagacctgaacaaatgggggccttaacatcttcaatgtggctgggtactcacataatcggcccctttacgtgcatcatgtatgcaatattccaggaa
agagaccttctgaagacgtttaaaatctcatctgacacctttgtaacctacatgatgactttagaagaccattaccattctgatgtggcatatcacaacagcct
gcatgctgctgacgtggcccagtcaactcacgttctcctttctacgccggcactggatgctgtcttcacagacctggaaatcctggctgccattttgcagc
tgccatccatgatgtcgatcatcctggagtctccaatcagtttctcatcaatacaaattctgaacttgctttgatgtataatgatgaatctgttctggaaaaccat
caccttgctgtgggattcaaattgctacaagaggaacactgcgacatctttcagaatcttaccaagaagcaacgccagacactcaggaaaatggtgattg
acatggtgttggcaactgatatgtccaaacacatgagcctcctggcagaccttaaaacaatggtagaaaccaagaaggtgacaagctccggtgttctcct
cctggacaactactactgaccggatacaggttcttcgcaacatggtacactgtgcagacctgagcaacccaccaagtccttggaattgtatcggcaatgg
accgatcgtatcatggaggagttttttccagcagggagacaaagaacgggagaggggaatggagattagcccaatgtgtgataagcacacagcttctgt
ggaaaaatcccaggttggtttcattgactacattgtccatccactgtgggagacctgggcagacctggttcaaccggatgctcaagatattctggatacac
tagaagataacaggaactggtaccagagtatgataccccagagcccttccccgccactggatgagaggagcagggactgccaaggcctgatggaga
agtttcagtttgaactgacccttgaggaagaggattctgagggaccggaaaaggagggagaaggccacagctatttcagcagcacaaagacgctttgt
gtgattgatccagagaacaggggattctctggaagagactgacatagacattgcaacagaagacaagtctccgatcgacacataatctctctccctctgtgt
ggagatgaacattccacccttgactgagcatgcccgctgagtggtagggtcacctaccatggccaaggcctgcacaggacaaaggccacctggccttt
ccagttacttgagtttggagccagaatgccaggccgtgaagcaaatagcagttccatgctgtcttgccttgcctgcaagcttggcggagacccgcagct
gtatgtggtagtagaggccagttcccatcaaagctaaatggcttgaaaacagaggacacaaagctgagagattgctctgcactaggtgttgggaagct
gtcctgacagatgactgaactcactaacaacttcatctataaatctcaccacccaacccattgtctgccaacctgtgtgccttttttgtaaaatgtttcgcgtc
35   tttgaaatgcctgttgaatatctagagtttagtaccaacttctacaaacttttttgagtctttcttgaaaaacaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
aaaaaa

SEQ ID NO:26

40   MTAKNSPKEFTASESEVCIKTFKEQMRLELELPKLPGNRPTSPKISPRSSPRNSPCFFRKLLVNKSI
RQRRRFTVAHTCFDVENGPSPGRSPLDPQAGSSSGLVLHAAFPGHSQRRESFLYDLDSDYDLSP
KAMSRNSSLPSEQHGDDLIVTPFAQVLASLRSVRNNFTLLTNLHGAPNKRSPAASQAPVSRVSL
QEESYQKLAMETLEELDWCLDQLETIQTYRSVSEMASNKFKRMLNRELTHLSEMSRSGNQVSE
YISNTFLDKQNDVEIPSPTQKDREKKKKQQLMTQISGVKKLMHSSSLNNTSISRFGINTENEDHL
45   AKELEDLNKWGLNIFNVAGYSHNRPLTCIMYAIFQERDLLKTFKISSDTFVTYMMTLEDHYHSD
VAYHNSLHAADVAQSTHVLLSTPALDAVFTDLEILAAIFAAAIHDVDHPGVSNQFLINTNSELAL
MYNDESVLENHHLAVGFKLLQEEHCDIFQNLTKKQRQTLRKMVIDMVLATDMSKHMSLLADL
KTMVETKKVTSSGVLLLDNYTDRIQVLRNMVHCADLSNPTKSLELYRQWTDRIMEEFFQQGD
KERERGMEISPMCDKHTASVEKSQVGFIDYIVHPLWETWADLVQPDAQDILDTLEDNRNWYQS
50   MIPQSPSPPLDERSRDCQGLMEKFQFELTLEEEDSEGPEKEGEGHSYFSSTKTLCVIDPENRDSLE
ETDIDIATEDKSPIDT

SEQ ID NO:27

55   ggccgcgcgggagtctgagaatgcaaagtgccatgttcctggctgtccagcacgactgcgtacccatggacaagagtgcaggcaacggccccaagg
tcgaggagaagcgggagaaaatgaagcggacactcttaaaccattggaagacccgtttgagctacttcttgcagaattcctctgctcctgggaagcccca
aaactggcaagaaaagcaaacagcaaactttatcaagccttctcctgaggaagcgcacgtctgggcagaagcatttgatgaactgctggccagtaaat

atgggctggctgcattcagggcgtttttaaagtccgagttctgtgaagaaaacattgaattctggttggcttgtgaagacttcaaaaaaaccaaatcacccc
aaaaactgtcctcaaaagcaaggaaaatctataccgacttcatagagaaggaagctcccaaagagataaacatagacttccaaacgaaatctctgattgc
ccaaaatatccaagaggctacaagtggctgcttcaccacagctcagaagagggtgtacagtttgatggagaacaattcttatcctcggttcttggagtccg
aattctaccaggacttatgtaaaaagccacagatcaccacggagccccatgctacatgagaccaggagtccccccacacacaaaggacattccattctg
tctcccaagagcaaaggctgtgacctgccagaaaaaaaaaaaaaactgaccttgaattcagcctgagtgttaggaaaacatcgctcagaactattgattc
aatgttgggtagtgaatcaggaagtcagcaacctaggagaggctctgtgtgagaacggcttccctcactgtgtgaagaacagagggagggaacaggc
ctctgaatgtgttcttcctccttgtcgggaaagcagagtttgagatgaaagatccgatgcaatgttgttggagcatttaaaatcaagaggtctgggattatgt
ggccttagctagttggctgtacaccttccctaaactagtccatgttacacatagtggtgttagttctagtttaatattttagtactaagtaacattacaatgtttac
tgtgtgcaagggtgttgacgttcttaggactacagatcattagtactagtgtgtcacgtatcactgaaactgagaagtatgtttgagttgttaaatggtgtgtgt
gatggaccgaatgctgtgccgtgctgtagaa

SEQ ID NO:28

MQSAMFLAVQHDCVPMDKSAGNGPKVEEKREKMKRTLLNHWKTRLSYFLQNSSAPGKPKTG
KKSKQQTFIKPSPEEAHVWAEAFDELLASKYGLAAFRAFLKSEFCEENIEFWLACEDFKKTKSP
QKLSSKARKIYTDFIEKEAPKEINIDFQTKSLIAQNIQEATSGCFTTAQKRVYSLMENNSYPRFLE
SEFYQDLCKKPQITTEPHAT

SEQ ID NO:29

aaaaagtatatgaggacaaatgtaaggcaaatgaccatggaaacagttgaatcacagcaggatcgaagtgtaacacgttctgtggcagagcatagctct
gctcatatgcagactggtcaaatttctgttcctactctagctcaggtagcaacaattgcagagacagatgattctgcagactcagaagtaattgattcgcata
aacgtagagaaattctttcacgaagaccctcatatagaaaaatactgaatgaactttcctctgatgtgcctggtattcccaagattgaagaagaaaaatcag
aggaagaagggacaccacctaacattgctaccatggcagtaccaactagcatatatcagactagcacgggggcaatacaatgaggagactgaccttgcc
ccaagtcacatggctgctgccacaggtgacatgccaacttaccagatccgagctcctactactgctttgccacaaggtgtggtgatggctgcctcaccag
gaagcctgcacagtccccagcaactagcagaagaagcaactcgcaagcgggagctgaggctgatgaaaaacagggaagctgcccgggagtgtcg
caggaagaagaaagaatatgtcaaatgtcttgaaaatcgtgtggctgtgcttgaaaatcaaaacaagaccctcattgaggaactcaaggccctcaaaga
cctttattgccataaagcagagtaactgtgtttgatttggaccttgttgactgtgaactctaatcggggcaggcgatgcagcatcctcataatggccatgtgg
acttgtagatgggtctcttaacccttgcttaagaatacagtctgctgtagagtgtgaattgggaatactgttccatgggttggaatgcagctcccctcacatta
ccaagcttgctctattgccaatagcatgcaacatatgtttgtttgcccttctgcttctactttttcagggaagctgctaaagaatgtcgacgtcgaaagaaag
agtatgtgaagtgtcttgagagtcgagtcgcagtgctggaagttcagaacaagaagcttatagaggagcttgaaactttgaaagacatttgctctcccaaa
acagattagtagaaatatttaactatgaactgattacagcatgtacagttgctttgaatgcaatacaaatatatagccggcaagaattatggcttttttcctttgt
atcattcatctaactttctaaaactaacattcctaagatgctttgttgtatttaatttgctcttacctctaaggtcaattttttagaagagacaaactcaaaaaatgta
tgtaacaaattcttaaaatgaagtatttgtaagacttgttccagtcaacatatttacagttcccagtctctctgtcatgaatagtgtcctatgcaataaaaattttg
caggtttaagaatcattttaggaaagggtgaatcaaaggcagtgcatctctccagtagtaagataaaatcaacccatagagatacctcaggaaagaatg
aaaggaagtgtatcctgatgacatgacgtgagaatagcctacaaatgaatttatgcatttatagattttttataatcgtcactttgtaaagaaagtattgtattgct
gtccttgggtgccacagttgaagacagtttaaatagaaccatgttggttgctcttttgtactatttggtatttatttaagtatctgagcatttactacagcttcctac
tatgtatgtagtatgtgaatttctacaaaagtttgtgctctttgctgttatttaatgaaagagacaacatatttcattatctggaatgagttccacaagtatgaattt
attgctacactggatcagcagccttgcaaatactgggccatttcattagaggacaacagcagggctctaggagcagagttcagtgtggagcacttgcctg
gcatgctacatgttcagttgaaagggaagacctcaagctctgcaaatggaatggggtccaggggaagaggttagaggttagcctttgtgctgtactagg
cttcttgctgatcgtctggagagtttctgctgatgaccctccattgtgaattcttgcaacctcaggaatgttaacgtttaaaaaacttcccaagatgtcattttg
atttacaacttggatcaatttgtttgctctttggaatatagctgtgtacatttgtcacgtaggtttaggctggccttaaactcacagttctcttgcctcagccttc
tgagtgcttggattacggatgtgggccagaatatccagtttgatcaagtattcttttataaaatattactttctttttt

SEQ ID NO:30

MTMETVESQQDRSVTRSVAEHSSAHMQTGQISVPTLAQVATIAETDDSADSEVIDSHKRREILS
RRPSYRKILNELSSDVPGIPKIEEEKSEEEGTPPNIATMAVPTSIYQTSTGQYNEETDLAPSHMAA
ATGDMPTYQIRAPTTALPQGVVMAASPGSLHSPQQLAEEATRKRELRLMKNREAARECRRKKK
EYVKCLENRVAVLENQNKTLIEELKALKDLYCHKAE

SEQ ID NO:31

gctgaagcgtttcctcaagcctgccggggtggaggagaggaggaggtggtggtggtggaggaggtggaggcagaggtggagagagagaaag
cgcacgccgagaggaggtgtgggtgttccgctcccatcctaacggaacgagctccctcttcgcggacatgggattgcccagcggctgctaacccctct
cctggtcctgatcccccaaaccggcgtggctccccggtcaccaaggagctgattacaagggaccaggatttgcatccttggctgggcgtccattggcta
cagagtgcctgacctgggtcaggctttccaacacggacatgtctgacaaaatgtctgagtttcctacatattggagacatttgttctctgtatgcggagggat

ctacgaatggatttatcagcaccttaggcttggttgatgaccgttgtgttgtacagccagaagccgggggaccttaacaatccacccaagaaattcagaga
ctgcctctttaagctatgtcctatgaatcgatactccgcacagaaacagttctggaaagctgctaagcccggggccaacagcactacagatgcagtgctg
ctcaacaaattgcatcatgctgcagacttggaaaagaagcagaatgagacagaaaacaggaaattgttggggaccgtcatccaatatggcaacgtgatc
cagctcctgcatttgaaaagcaataaatacctgactgtgaataagaggctcccagccttgctagagaagaatgccatgagggtgacgttggacgaggct
ggaaatgaagggtcctggttttacattcaaccattttacaagcttcgctccatcggagacagtgtggtcataggcgacaaggtagtttgaatcctgtcaat
gctggccagcctctacatgccagcagtcatcagctggtggataacccaggctgcaatgaggtcaactccgtcaactgtaatacaagctggaagatagtg
ctttcatgaaatggagtgataacaaagacgacattctcaaaggaggtgatgtggtgaggctcttccatgccgagcaagagaagtttctcacctgtgatga
gcaccggaagaagcagcatgtgttcctgaggaccaccggcaggcagtcagccacgtcggccaccagttctaaagccctgtgggaagtggaggtagt
ccagcacgacccatgtcggggtggagctgggtactggaatagcctcttccggttcaagcacctggctacagggcattacttggctgcagaggtagacc
ctgactttgaggaagaatgcctggagtttcagccctcagtggaccctgatcaggatgcatctcggagtaggttgagaaacgcgcaagaaaaatggtat
actctctggtctccgtgcctgaaggcaacgacatctcctccatctttgagctagaccccacgactctgcgtggaggtgacagccttgtcccaaggaactc
ctatgtccgtctcagacacctgtgtgcaccaacacctgggtacacagcacaaacatccccatcgacaaggaagaggagaagcctgtgatgctgaaaattg
gtacctctcccctgaaggaggacaaggaagcatttgccatagttcctgtttccctgctgaggttcgggacctggactttgccaatgatgccagcaaggt
gctgggctccatcgctgggaagttggaaaaagggcaccatcacccagaatgagagagaaggtctgtcacgaagcttttggaagacttggtttactttgtcacg
ggtggaactaactctggccaagacgtgcttgaagttgtcttctctaagcccaatcgagagcggcagaagctgatgagggaacagaatattctcaagcag
atcttcaagctgttgcaggcccccttcacggactgcgggggatggcccgatgcttcggctggaggagctgggggatcagcgccatgctcctttcagacat
atttgccgactctgctacagggtcctgcgacactcacagcaagactacaggaagaaccaggagtacatagccaagcagtttggcttcatgcagaagca
gattggctatgacgtgctggccgaagacaccatcactgccctgctccacaacaaccggaaactcctggagaagcacatcaccgcggcagagattgac
acgtttgtcagcctggtgcgaaagaacagggagcccaggttcttggattacctctctgacctctgcgtatccatgaacaagtcaatccctgtgacacagg
agctcatctgtaaagctgtgctcaatcccaccaatgctgacatcctgattgagaccaagctggttcttttctcgtttttgagtttgaaggcgtttccactggagag
aatgctctggaagccggggaggatgaggaagaggtgtggctgttctggagggacagcaacaaagagatccgtagtaagagtgtccgggaattggcg
caagatgctaaagagggacagaaggaagacagggacatcctcagctactacagatatcagctgaacctctttgcaaggatgtgtctggaccgccagta
cctggccatcaatgaaatctccgggcagctggatgttgatctcattctccgctgcatgtctgacgagaacctcccctacgacctcagggcatcctttgcc
gcctcatgcttcacatgcatgtggaccgagatccccaagagcaggtgacacctgtgaaatatgcccgactgtggtcagaaattccctctgagatcgccat
tgatgactatgacagcagtggaacatccaaagatgaaattaaggagaggtttgcacagacgatggagtttgtggaggagtacctaagagatgtggtttgt
caaagattcccccttctctgataaggagaaaaataagctcacgtttgaggttgtgaacttagccaggaatctcatatactttggtttctacaactttctgacctt
ctccgattaaccaagatcctcttggcaatcttagactgtgtccatgtgaccactatcttccccattagcaagatgacaaaaggagaagagaataaaggcag
taacgtgatgaggtctatccatggccgttggggagctgatgacccaggtggtgctgcggggaggaggcttcttgcccatgactcccatggctgcggccc
ctgaaggaaatgtgaagcaggcagagccagagaaagaggacatcatggtcatggacaccaagttgaagatcattgaaatactccagtttattttgaatgt
gagattggattataggatctcctgcctcctgtgtatatttaagcgagagtttgatgaaagcaattcccagtcatcagaaacatcctccggaaacagcagcca
ggaagggccaagtaatgtgccaggtgctcttgactttgaacacattgaagaacaagcggaaggcatctttggaggaagtgaggagaacacacctttgg
acctggatgaccatggtggcagaaccttcctcagggtcctgctccacttgacaatgcatgactacccaccccctggtgtctggggccctgcagctcctcttt
cggcacttcagccagaggcaggaggtccttcaggccttcaaacaggttcaactgctggttactagccaagatgtggacaactacaaacagatcaagca
agacttggaccaactaaggtccattgtggagaagtctgagctctgggtgtacaaaggccaaggtcccgatgagcctatggacggagcctccggtgaaa
atgagcataagaaaaccgaggaggggacgagcaagccactgaagcacgagagcaccagcagctacaactaccgagtggtgaaagagattttgattc
gacttagcaagctctgcgtgcaggagagcgcgtcggtgaggaagagccggaagcagcagcaacgactgctgaggaacatgggcgcacacgctgt
ggtgctggagctgctgcagatcccctacgagaaggccgaagacacaaagatgcaagagatcatgcggctggctcatgaattttgtcagaatttctgtgc
aggcaaccagcagaatcaagctttgctgcataaacacataaacctgtttctcaagcccagggatcctggaggcagtgacgatgcagcacatcttcatgaa
caacttccagctgtgcagtgagatcaacgagagagtggtccagcacttttgttcactgcatagagacccacggtcgaaacgtccagtatatcaagtttctcc
agacgattgtcaaggcagaagggaaattcattaaaaaagtgccaagacatggtcatggctgagcttgtcaactctggagaggacgtcctcgtgttctacaa
tgacagagcctcttccagactctgatccagatgatgcggtccgagcgtgaccggatggatgagaacagccctctcatgtaccacatccatcggtgga
gctcttggccgtgtgcacagagggcaagaatgtgtacacggagatcaagtgcaactccttgctcccgctcgatgacatcgttcgtgtggtcactcatgaa
gactgcatccccgaggttaagatcgcttacattaacttcctgaatcactgctatgtggatacggaggtggagatgaaggagatttacacaagcaaccaca
tgtggaagttgtttgagaattcctcgtggacatctgcagggcctgtaacaacacaagcgacaggaagcacgcagactccattctggagaagtacgtca
ctgaaatcgtgatgagcatcgtcaccaccttcttcagctctcccttctcagaccagagcaccactctgcagacccgccagcctgtctttgtgcaactcctgc
aaggcgtgttccgagtttaccactgcaactggctgatgccgagccaaaaagcctcggtggagagctgcatccgggtgctctctgacgtagccaagagc
cgggccatagccattcctgttgacctggacagccaagtcaacaacctcttcctgaagtcccacaacattgtgcagaaaacagccctgaactggcggttat
cagccccgaaacgccgctcgcagagactctgtactggcagcatccagagactaccgaaatatcattgagaggttacaggacatcgtgtctgccctagag
gaccggctcaggcccctggtgcaggctgagctgtctgtgtcgtggatgttctacacagaccagaactgctcttccccgagaacacggatgccaggag
gaaatgtgagagtggaggtttcatctgcaagctaataaaacataccaagcaactgctggaggagaatgaagagaaactatgcattaaagtcttacagac
cctcaggaaatgatgaccaaagacagaggctatggagagaagcaaatttccattgatgaatcggaaaatgccgagctgccacaggcaccggaagct
gagaactccacagagcaggagcttgaaccaagtccacccctgagggcaactggaagaccataaaaggggtgaggcactccgacaaatttggtcaacc
gttactatggaaacatcagaccttcaggaagaagagagagagccttaccagctttggcaatggcccactatcaccaggaggacccagcaagcctggtgga
ggagggggaggtcctggatctagttccacaagcaggggtgagatgagcctggctgaggttcagtgtcacctcgacaaggaggggcctccaacctg
gtcatcgatctcataatgaatgcatccagtgaccgagtattccatgaaagcattctgctggccatcgcacttctggaaggaggcaacaccaccatccagc
actcgttttctgccggctgacagaagataagaaatcagagaagttcttcaaggttttttacgatcgaatgaaggtggcccagcaggaaatcaaggcgac
agtgacagtgaacaccagcgacttgggaaacaaaaagaaagatgatgaagtggacaggatgccccgtctcggaagaaagccaaagagcccacaa

cacagataacagaagaggtccgggatcagctcctggaagcatctgctgccaccaggaaagcctttaccaccttccggagggaggccgaccctgatga
ccattaccagtctggggagggcacccaggctacaaccgacaaagccaaggatgacctagagatgagcgctgtcatcaccatcatgcagcctatcctg
cgcttcctgcagctgctgtgtgaaaaccacaaccgagatctgcagaatttccttcgttgccaaaataataagaccaactacaatttggtgtgtgagacactg
cagtttctggactgtatttgtggggagcacaaccggaggccttggtcttcttggactgtacataaatgaaaagaatgtagcacttatcaaccaaaccctgga
gagtctgacggagtactgtcaagggccttgccatgagaaccagaactgcatcgccacccacgagtccaatggcatcgatatcatcacagccctcatcct
caatgatatcaaccctctgggaaagaagcggatggacctggtgttagaactgaagaacaatgcttcgaagctgctactggccatcatggaaagcagac
acgatagtgaaaatgcagagaggatcctgtacaacatgaggcccaaggagctggtggaagtgatcaagaaggcctacatgcaaggtgaagtggaatt
tgaggatggggagaacggtgaggatggagctgcctcacccaggaacgtgggccacaacatctacatcctcgctcaccagttggctcggcataacaaa
gaacttcaaaccatgctgaaacctggaggccaggtggatggggatgaagctctggagttctacgcgaagcacacagcacaaattgagattgtcagact
ggaccggacaatggaacagatcgtcttccctgtgcccagcatctgtgaattcctgactaaggaatcgaaacttcgaatatattacaccacagagcgggat
gagcaaggtagcaagatcaatgacttcttcctgcgctccgaggacctctttaacgagatgaactggcagaagaaacttcgagcccagcctgtcttgtact
ggtgtgcccgaaacatgtctttctggagcagcatctccttcaacctggccgtcctgatgaacctgctggtggccgttttctatccatttaaaggagtgaggg
gaggaacactagagccacactggtcaggcctcctgtggacagccatgctcatctctctggccattgtcattgctctgcccaagccccacggcatccggg
ccttaattgcttctacaatcctacgactgatattttcagttgggttgcagcccacactgtttctgctgggagctttcaatgtctgcaataaaatcatcttcctgat
gagctttgtgggcaactgtgggaccttcaccagaggctaccgggccatggttctggatgtggagttcctctatcatttgctgtatctactcatctgtgccatg
ggcctcttcgtacatgagttcttctatagcttgctgctttttgatttagtgtacagagaggagactttgcttaatgtcattaaaagtgtcacccgcaatggacgg
tccatcatcttgacagcggtcctggctctgatcctggtttacctgttctcaattgtgggctatctgttcttcaaggatgactttatcttggaagtagatataggttgc
ccaatgaaacagctgttccagaaactggcgagagtttggccaacgatttcctgtactctgatgtgtgtcagggtagagacggggagaactgcacctctc
ctgcacccaaagaagagctgctccctgccgaagaaacggaacaggataaggaacacacgtgtgagaccctgctcatgtgcatcgtcactgttctgagt
cacgggctgcggagtgggggaggggtaggagacgtgctcaggaagccatccaaagaggagcctctgtttgctgcaagggtgatctacgacctcctct
tcttcttcatggtcatcatcatcgtcctgaacctgattttcggggtcatcatcgacacctttgctgacctgaggagtgagaagcaaaagaaggaggagatct
taaaaaccacgtgcttcatctgcggcttggaaagggacaagtttgacaataagactgtcacctttgaagagcacatcaaggaagaacacaacatgtggc
actatctgtgcttcatcgtgctggtgaaagtgaaggactccacagagtacaccgggcctgagagttacgtggcagagatgatcagggaaagaaaccttg
attggttcctcagaatgagagccatgtccctggtcagcagcgattctgaaggggaacagaacgagctgaggaacctgcaggagaagctggagtctac
catgaagctggtcaccaatctttctggccagctgtcagaactaaaggaccagatgacagaacagaggaagcagaaacaaagaatcggccttctagga
catcctcctcacatgaatgtcaacccacagcagccggcctaggcaaatgaggcagagggactctgctcagccctctgtatatcactgtcagggtgggta
cggctcattggttctgatttgcccactaagggtacatgtgcgcttagtacatttgtaaatactcagttttgtattgtatgtatatgattgctattctcagaggtttgg
actttcgtattgtaattagctctgttggcatggtgacttgtcactcctgccaaaaatattaaaaatgcctttttggaaggactacagaaagtacctgatttgcac
ttgaaccagattatagatttaaaagtatatgacatgtattttgtatttaaaactagaatagccagtatttatgtttttttataaaactgtgcaatacaaattatgcaatc
accataactttgtaactcctgagtgtcctaaggggagtacacatctttgaagctgatttgttgatactcgtgtaataaatggttaaatatcaaatgctgctgctgc
tgccaaaattatattaatagcgagtttctggcccctgggcaattttgtaccttgtaattatcctatggtgatgctgtttctcgttgctaatggcattagtgcccctg
tatcctagtgataactccaggtctgtgaaccattcaaacagcattcattttgagaaaagcaacttagtttcaaggataattttaagcttcaaaattaatcattta
aagtgtttctttaagagagccatgttagaggctcacacacttagcttgaaaggagttgatgaattaattttttaaagggaactttttacatgacgtttggaataaca
gcatattgctgaccagtcagtgtcatctcccgggtgaattttgatgtcacgttatagtcaaatgagttagctgatggtttctagattttcttcctctgaaccatga
tgcagtaggtaagaagttattatgcgtatatacatatatacattcatatacgacaaagtaggagctgtcccccttaggatgcatagctgcccctagggtacgta
gctgaacactgacaatggcgttcttctgaaagagccacgtttgggtttatttctttgtcacatgatttctttctggatgggtgcaaagtatcacaggaagtgtt
ttctctctgtcgccttgttttgtacctgggtctcgcttactagaccgtctctgcacaaaagtttaaaaactgaaccgtatgcagagttccgaagcaagtcaag
tttgtaaatgcatacctaaaaatatttaataaacgatgcagaatcct

SEQ ID NO:32

MSDKMSSFLHIGDICSLYAEGSTNGFISTLGLVDDRCVVQPEAGDLNNPPKKFRDCLFKLCPMN
RYSAQKQFWKAAKPGANSTTDAVLLNKLHHAADLEKKQNETENRKLLGTVIQYGNVIQLLHL
KSNKYLTVNKRLPALLEKNAMRVTLDEAGNEGSWFYIQPFYKLRSIGDSVVIGDKVVLNPVNA
GQPLHASSHQLVDNPGCNEVNSVNCNTSWKIVLFMKWSDNKDDILKGGDVVRLFHAEQEKFL
TCDEHRKKQHVFLRTTGRQSATSATSSKALWEVEVVQHDPCRGGAGYWNSLRFKHLATGHY
LAAEVDPDFEEECLEFQPSVDPDQDASRSRLRNAQEKMVYSLVSVPEGNDISSIFELDPTTLRGG
DSLVPRNSYVRLRHLCTNTWVHSTNIPIDKEEEKPVMLKIGTSPLKEDKEAFAIVPVSPAEVRDL
DFANDASKVLGSIAGKLEKGTITQNERRSVTKLLEDLVYFVTGGTNSGQDVLEVVFSKPNRERQ
KLMREQNILKQIFKLLQAPFTDCGDGPMLRLEELGDQRHAPFRHICRLCYRVLRHSQQDYRKN
QEYIAKQFGFMQKQIGYDVLAEDTITALLHNNRKLLEKHITAAEIDTFVSLVRKNREPRFLDYLS
DLCVSMNKSIPVTQELICKAVLNPTNADILIETKLVLSRFEFEGVSTGENALEAGEDEEEVWLFW
RDSNKEIRSKSVRELAQDAKEGQKEDRDILSYYRYQLNLFARMCLDRQYLAINEISGQLDVDLI
LRCMSDENLPYDLRASFCRLMLHMHVDRDPQEQVTPVKYARLWSEIPSEIAIDDYDSSGTSKDE
IKERFAQTMEFVEEYLRDVVCQRFPFSDKEKNKLTFEVVNLARNLIYFGFYNFSDLLRLTKILLA
ILDCVHVTTIFPISKMTKGEENKGSNVMRSIHGVGELMTQVVLRGGGFLPMTPMAAAPEGNVK
QAEPEKEDIMVMDTKLKIIEILQFILNVRLDYRISCLLCIFKREFDESNSQSSETSSGNSSQEGPSN

VPGALDFEHIEEQAEGIFGGSEENTPLDLDDHGGRTFLRVLLHLTMHDYPPLVSGALQLLFRHFS
QRQEVLQAFKQVQLLVTSQDVDNYKQIKQDLDQLRSIVEKSELWVYKGQGPDEPMDGASGEN
EHKKTEEGTSKPLKHESTSSYNYRVVKEILIRLSKLCVQESASVRKSRKQQQRLLRNMGAHAVV
LELLQIPYEKAEDTKMQEIMRLAHEFLQNFCAGNQQNQALLHKHINLFLKPGILEAVTMQHIFM
NNFQLCSEINERVVQHFVHCIETHGRNVQYIKFLQTIVKAEGKFIKKCQDMVMAELVNSGEDVL
VFYNDRASFQTLIQMMRSERDRMDENSPLMYHIHLVELLAVCTEGKNVYTEIKCNSLLPLDDIV
RVVTHEDCIPEVKIAYINFLNHCYVDTEVEMKEIYTSNHMWKLFENFLVDICRACNNTSDRKHA
DSILEKYVTEIVMSIVTTFFSSPFSDQSTTLQTRQPVFVQLLQGVFRVYHCNWLMPSQKASVESCI
RVLSDVAKSRAIAIPVDLDSQVNNLFLKSHNIVQKTALNWRLSARNAARRDSVLAASRDYRNII
ERLQDIVSALEDRLRPLVQAELSVLVDVLHRPELLFPENTDARRKCESGGFICKLIKHTKQLLEE
NEEKLCIKVLQTLREMMTKDRGYGEKQISIDESENAELPQAPEAENSTEQELEPSPPLRQLEDHK
RGEALRQILVNRYYGNIRPSGRRESLTSFGNGPLSPGGPSKPGGGGGGPGSSSTSRGEMSLAEVQ
CHLDKEGASNLVIDLIMNASSDRVFHESILLAIALLEGGNTTIQHSFFCRLTEDKKSEKFFKVFYD
RMKVAQQEIKATVTVNTSDLGNKKKDDEVDRDAPSRKKAKEPTTQITEEVRDQLLEASAATRK
AFTTFRREADPDDHYQSGEGTQATTDKAKDDLEMSAVITIMQPILRFLQLLCENHNRDLQNFLR
CQNNKTNYNLVCETLQFLDCICGSTTGGLGLLGLYINEKNVALINQTLESLTEYCQGPCHENQN
CIATHESNGIDIITALILNDINPLGKKRMDLVLELKNNASKLLLAIMESRHDSENAERILYNMRPK
ELVEVIKKAYMQGEVEFEDGENGEDGAASPRNVGHNIYILAHQLARHNKELQTMLKPGGQVD
GDEALEFYAKHTAQIEIVRLDRTMEQIVFPVPSICEFLTKESKLRIYYTTERDEQGSKINDFFLRSE
DLFNEMNWQKKLRAQPVLYWCARNMSFWSSISFNLAVLMNLLVAFFYPFKGVRGGTLEPHWS
GLLWTAMLISLAIVIALPKPHGIRALIASTILRLIFSVGLQPTLFLLGAFNVCNKIIFLMSFVGNCGT
FTRGYRAMVLDVEFLYHLLYLLICAMGLFVHEFFYSLLLFDLVYREETLLNVIKSVTRNGRSIIL
TAVLALILVYLFSIVGYLFFKDDFILEVDRLPNETAVPETGESLANDFLYSDVCRVETGENCTSPA
PKEELLPAEETEQDKEHTCETLLMCIVTVLSHGLRSGGGVGDVLRKPSKEEPLFAARVIYDLLFF
FMVIIIVLNLIFGVIIDTFADLRSEKQKKEEILKTTCFICGLERDKFDNKTVTFEEHIKEEHNMWHY
LCFIVLVKVKDSTEYTGPESYVAEMIRERNLDWFLRMRAMSLVSSDSEGEQNELRNLQEKLEST
MKLVTNLSGQLSELKDQMTEQRKQKQRIGLLGHPPHMNVNPQQPA

SEQ ID NO:33

ggcacgagccgagttggaggaagcagcggcagcggcagcggcagcggtagcggtgaggacggctgtgcagccaaggaaccgggacagcgaa
gcgacggcaggtcgcagctggatcgcaggagcctgggagctgggagcttcagaggccgctgaagcccaggctgggcagaggaaggaagcgagc
cgacccggaggtgaagctgagagtggagcgtggcagtaaaatcagacgacagatggacagtgtgacaggaacgtcagagaggattgggcctcgct
gcgagagtcagcctggagtcaaggtgttgacaagttgctgagaaggacacgtgggaggacggtggcgcgcgagggagagccctgtcttcagtca
ccccgttgatgaggacagatggacagcagccggacggccagtcacctctcttaaacctttggatagtggtcctttgtgctctgctggacacctgttggg
gattttagcccattctctgaactcactttctcttaaaacgtaaactcggacggcagtgtgcgagccagctcctctgtggcagggcactagagctgcagaca
tgagtgcagagggctaccagtacagagcactgtacgactacaagaaggagcgagaggaagacattgacctacacctggggggacatactgactgtga
ataaaggctccttagtggcacttggattcagtgatggccaggaagcccggcctgaagatattggctggttaaatggctacaatgaaaccactggggaga
ggggagactttccaggaacttacgttgaatacattggaaggaaaagaatttcaccccctactcccaagcctcggcccctcgaccgcttcctgttgctcc
gggttcttcaaaaactgaagctgacacggagcagcaagcgttgcccttcctgacctggccgagcagtttgcccctcctgatgttgccccgcctctcctt
ataaagctcctggaagccattgagaagaaaggactggaatgttcgactctatacagaacacaaagctccagcaaccctgcagaattacgacagcttctt
gattgtgatgccgcgtcagtggacttgagatgatcgacgtacacgtcttagcagatgcttcaaacgtatctcgccgacttaccaaatcctgtcattcct
gtagctgtttacaatgagatgatgtcttagcccaagaactacagagccctgaagactgcatccagctgttgaagaagctcattagattgcctaatatacct
catcagtgttggcttacgcttcagtatttgctcaagcattttttcaagctctctcaagcctccagcaaaaacctttgaatgcaagagtcctctctgagattttca
gccccgtgcttttcagatttccagccgccagctctgataatactgaacacctcataaaagcgatagagatttttaatctcaacggaatggaatgagagacag
ccagcaccagcactgcccccccaaaccacccaagcccactactgtagccaacaacagcatgaacaacaatatgtccttgcaggatgctgaatggtactg
gggagacatctcaaggggaagaagtgaatgaaaaactccgagacactgctgatgggaccttttggtacgagacgcatctactaaaatgcacggcgatta
cactcttacacctaggaaaggaggaaataacaaattaatcaaaatctttcaccgtgatggaaaatatggcttctctgatccattaaccttcaactctgtggttg
agttaataaaccactaccggaatgagtctttagctcagtacaaccccaagctggatgtgaagttgctctacccagtgtccaaataccagcaggatcaagtt
gtcaaagaagataatattgaagctgtaggaaaaaattacatgaatataatactcaatttcaagaaaaaagtcgggaatatgatagattatatgaggagtac
acccgtacttccaggaaatccaaatgaaaagaacggctatcgaagcatttaatgaaaccataaaaatatttgaagaacaatgccaaacccaggagcgg
tacagcaaagaatacatagagaagtttaaacgcgaaggcaacgagaaagaaattcaaaggattatgcataaccatgataagctgaagtcgcgtatcagt
gagatcattgacagtaggaggaggttggaagaagacttgaagaagcaggcagctgagtaccgagagatcgacaaacgcatgaacagtattaagccg
gacctcatccagttgagaaagacaagagaccaatacttgatgtggctgacgcagaaaggtgtgcggcagaagaagctgaacgagtggctgggggaat
gaaaataccgaagatcaatactccctggtagaagatgatgaggatttgccccaccatgacgagaagacgtggaatgtcgggagcagcaaccgaaaca
aagcggagaacctattgcgagggaagcgagacggcactttccttgtccgggagagcagtaagcagggctgctatgcctgctccgtagtggtagacgg
cgaagtcaagcattgcgtcattaacaagactgccaccggctatggctttgccgagccctacaacctgtacagctccctgaaggagctggtgctacattat

caacacacctccctcgtgcagcacaatgactccctcaatgtcacactagcatacccagtatatgcacaacagaggcgatgaagcgctgccctcggatcc
agttcctccaccttcaagccacccaaggcctctgagaagcaaagggctcctctccagcccgacctgtgaactgagctgcagaaatgaagccggctgtct
gcacatgggactagagctttcttggacaaaaagaagtcggggaagacacgcagcctcggactgttggatgaccagacgtttctaaccttatcctctttctt
tctttctttctttctttctttctttctttctttctttctttctttctttctttctttctttctaatttaaagccacaacacacaaccaacacacagagagaaagaaatgcaaaaat
ctctccgtgcagggacaaagaggcctttaaccatggtgcttgttaacgctttctgaagctttaccagctacaagttgggactttggagaccagaaggtaga
cagggccgaagagcctgcgcctggggccgcttggtccagcctggtgtagcctgggtgtcgctgggtgtggtgaacccagacacatcacactgtggat
tatttcctttttaaaagagcgaatgatatgtatcagagagccgcgtctgctcacgcaggacactttgagagaacattgatgcagtctgttcggaggaaaat
gaaacaccagaaaacgttttgtttaaacttatcaagtcagcaaccaacaacccaccaacagaaaaaaaaaaaaa

SEQ ID NO:34

MSAEGYQYRALYDYKKEREEDIDLHLGDILTVNKGSLVALGFSDGQEARPEDIGWLNGYNETT
GERGDFPGTYVEYIGRKRISPPTPKPRPPRPLPVAPGSSKTEADTEQQALPLPDLAEQFAPPDVAP
PLLIKLLEAIEKKGLECSTLYRTQSSSNPAELRQLLDCDAASVDLEMIDVHVLADAFKRYLADLP
NPVIPVAVYNEMMSLAQELQSPEDCIQLLKKLIRLPNIPHQCWLTLQYLLKHFFKLSQASSKNLL
NARVLSEIFSPVLFRFPAASSDNTEHLIKAIEILISTEWNERQPAPALPPKPPKPTTVANNSMNNN
MSLQDAEWYWGDISREEVNEKLRDTADGTFLVRDASKMHGDYTLTPRKGGNNKLIKIFHRDG
KYGFSDPLTFNSVVELINHYRNESLAQYNPKLDVKLLYPVSKYQQDQVVKEDNIEAVGKKLHE
YNTQFQEKSREYDRLYEEYTRTSQEIQMKRTAIEAFNETIKIFEEQCQTQERYSKEYIEKFKREG
NEKEIQRIMHNHDKLKSRISEIIDSRRRLEEDLKKQAAEYREIDKRMNSIKPDLIQLRKTRDQYL
MWLTQKGVRQKKLNEWLGNENTEDQYSLVEDDEDLPHHDEKTWNVGSSNRNKAENLLRGK
RDGTFLVRESSKQGCYACSVVVDGEVKHCVINKTATGYGFAEPYNLYSSLKELVLHYQHTSLV
QHNDSLNVTLAYPVYAQQRR

SEQ ID NO:35

ggaaggatgaggcgcccgcggcggcccggggggctccgggggctccgggggctccgggggcctccggctgctggtctgcctgctgttgctgagcg
gccgcccgggggctgcagcgccatcagtgcccacggctgtctgtttgaccgcagactttgttcgcatctggaagtctgtattcaggatggcttgttggga
cagtgccaggcaggagtggggcaggcacggcccctcttacaagtcacttccccagttctccagcgcctacaaggtgtgctccggcaactcatgtcccca
aggcttgtcctggcatgatgaccttacccagcatgtgatctcccaggagatggaacgcatccccaggcttcgccccccagagccccatccaagggaca
ggtctggtttggtgcccaggaaaccaggccctgcaggggaattgctaactcagggcaatcctactggctcctctcctgctgcccagggcttccaaggc
ctgcaggggacggagctggggcggctcccccactgtcctctctgcaggctgagttgttaccccctctcttggagcatctgctaatgcccccacagcctc
cacaccctgctctgacctatgaacctgcactgctacagccttacctcttccaccagtttggctcccgagatggctcccggggctcagagagctcctctgg
ggtagttggtgttggtcacctgtccaaggctgaaggtcctgcactcttcagcagaagtgcctccaaggccattttggggactcactctggacactcttttgg
ggaccttacaggtccctcacctgctcaacttttccaagattcagggctgctctacatggcccaagagttgccagtgcctgcagagcccgggcaccaag
gttgccagagaatggggggcaacagggcagaggactcttcagagggccatgaggaggaagtactaggggggtcgtgggggagaagtcccctccccaa
gcagcacaaccagaattgagtctgcagagattgactgctgtactggcaggctatggagtagagctgcgtcagttgaccccggagcagtttctaccctct
tgaccctgatgcagttgctgcccaagggcacaggaagaaatcttgaaggggctgtaaatgttggaggagccgatgtcaagaaaacaatacaacagatg
cagagaggagacccagcagaagctctgcccccacacacctcgcttcctgggtacctcactgccagccctgcctccagcgaagttcagcaggtgctga
gccctggtttccctgaacctccccacacacccagccctctgggctcctcctcagtccttctggagaagaaaagtccctggggccagagccagcccacag
tggtgggacggccatcagctcgaccatcggccgaggagtatggctatatcgtcactgaccagaaaccccctgagcctggtggctggagtgaggctgct
ggagattctggctgagcacgtgcatatgtcctccggtagctttatcaacatcagtgtggtgggaccagctgtcaccttccgaatccggcacaatgagcag
aacctgtctttggcagatgtgacccagcaagctgggctggtgaagtctgaactggaagcgcagacagggctccagattttgcagacaggggtgggac
agagggaggaagcagctgaagtccttccccgacaagcccatggcatatctcccatgcgctcagtgctgcttactctagtggccctggcaggcgtcgct
gggctgctagtggctttggcagtggccttgtgtatgcgccatcattcgagacagcgggataaggagcgcctggcagcgctggggccggagggggcc
catggtgacactactttgagtaccaggacctgtgtcgccagcacatggccacaaagtccctgtttaaccgggcggagggtcagccagagccttctagg
gtgagcagtgtgtcctcccagttcagcgacgcggcccaggccagcccccagttcccacagcagctctccatcttggtgcgaggagcccgcccaggcca
acatggacatctccacaggacacatgattctggcatacatggaggatcaccttcggaaccgggaccggttggccaaggagtggcaggctctgtgcgc
ctaccagcagagccaaacacctgtgccgccgcacaggatgagagcaacatcaagaagaaccgccatcctgacttcctacccctatgaccatgcccga
atcaagctgaaagtggagagcagcccttctcggagtgattacatcaacgccagccccatcatcgagcatgaccctcggatgccggcctacatagccac
acagggaccactgtcccacaccatcgcggacttctggcagatggtgtgggagagtggctgcactgtcatcgttatgctgaccccgttggtggaggacg
gtgtcaaacagtgtgaccgctactggccggatgaaggatcttccctctaccacgtctatgaggtgaacctggtgtcggagcacatctggtgcgaggactt
cctggtgcggagcttctaccttaagaacctgcagacccaggagacgcgcacgctcactcagttccacttcctcagctggccggcagagggcactccg
gcctccacccggccgctgctggacttccgcaggaaagtgaacaagtgctacagaggccgctcctgccccatcatagtgcactgcagtgacggtgcag
ggaggacaggcacctacatccttattgacatggtcctgaatcgcatggccaaaggagtgaaggagattgatattgctgccaccctggagcatgtccgtg
accagcggcctggacttgtccgttctaaggaccagtttgagtttgcgctgacagccgtggcagaggaggtgaatgctatcctcaaggccctgccccagt
gagccccctgggcgcctcagtgggcatcctggcctcggctccttctgcctgtgtgagcatctgtgcacccactcttcagcccctacccatctgccacctt

ggtctgacttggccatgggagcctttcccaacccagtgtggaagggagtcgggagggaaggaaggggtaggctcgccctgctttatccatgctagaa
ccatggtatcccatgggaagcagacagcaggcaaggagaggcgtggacaccggccacaggtgtgcccgagccccatcctacctgagtctctgtctc
cctctctggatatgtgcgtcccactcccaccagcctaccacctatagacaaagcagaacgaggaaaccccagctcccccaaccctgctaccactggc
ctgccaccttgaccctgctcaaccttctccctctagcacaagggaacatttctagaaaagtaaaatctacttttgtatcagtgtgaataaagttagtgtgttgtc

5 tgtgc

SEQ ID NO:36

MRRPRRPGGSGGSGGSGGLRLLVCLLLLSGRPGGCSAISAHGCLFDRRLCSHLEVCIQDGLFGQ

10 CQAGVGQARPLLQVTSPVLQRLQGVLRQLMSQGLSWHDDLTQHVISQEMERIPRLRPPEPHPR
DRSGLVPRKPGPAGELLTQGNPTGSSPAAQGFPRPAGGRSWGGSPLSSLQAELLPPLLEHLLMPP
QPPHPALTYEPALLQPYLFHQFGSRDGSRGSESSSGVVGVGHLSKAEGPALFSRSASKAILGTHS
GHSFGDLTGPSPAQLFQDSGLLYMAQELPVPGRARAPRLPENGGNRAEDSSEGHEEEVLGGRG
EKSPPQAAQPELSLQRLTAVLAGYGVELRQLTPEQFSTLLTLMQLLPKGTGRNLEGAVNVGGA

15 DVKKTIQQMQRGDPAEALPPTPSLPGYLTASPASSEVQQVLSPGFPEPPHTPSPLGSSSVLLEKKS
PLGQSQPTVVGRPSARPSAEEYGYIVTDQKPLSLVAGVRLLEILAEHVHMSSGSFINISVVGPAV
TFRIRHNEQNLSLADVTQQAGLVKSELEAQTGLQILQTGVGQREEAAEVLPRQAHGISPMRSVL
LTLVALAGVAGLLVALAVALCMRHHSRQRDKERLAALGPEGAHGDTTFEYQDLCRQHMATK
SLFNRAEGQPEPSRVSSVSSQFSDAAQASPSSHSSSPSWCEEPAQANMDISTGHMILAYMEDHLR

20 NRDRLAKEWQALCAYQAEPNTCAAAQDESNIKKNRHPDFLPYDHARIKLKVESSPSRSDYINAS
PIIEHDPRMPAYIATQGPLSHTIADFWQMVWESGCTVIVMLTPLVEDGVKQCDRYWPDEGSSLY
HVYEVNLVSEHIWCEDFLVRSFYLNLQTQETRTLTQFHFLSWPAEGTPASTRPLLDFRRKVNKC
YRGRSCPIIVHCSDGAGRTGTYILIDMVLNRMAKGVKEIDIAATLEHVRDQRPGLVRSKDQFEF
ALTAVAEEVNAILKALPQ

25
SEQ ID NO:37

cggcgggaggaaagcgcggtgaagccagattaggagcagcgagcacttggggacttagggccacaggacaccgcacaagatcgaccgactttttc
tggagaaccgcagaacgggcacgctggggtcgctggggctggccatggtgatggaggtgggcatcctggacgccggggggctgcgcgcgctgct

30 gcgagagggcgccgcgcagtgcctgttgttggattgtcgctccttcttcgctttcaacgccggccacatcgcgggctcagtgaacgtgcgcttcagcac
catcgtgcggcgccgcgccaagggcgccatgggcctggagcatcgtgcccaacgctgaactgcgtggccgcctgctggccggagcctaccacg
ccgtggtgctgctggacgagcgcagcgcctccctggacggcgccaagcgcgacggcaccctggccctggccgcgggcgcgctctgccgagagg
cgcgctccactcaagtcttctttctccaaggaggatatgaagcgttttcggcttcctgccctgagctgtgcagcaaacagtccacccccacggggctcag
cctcccctgagtactagtgtgcctgacagtgcagaatccggatgcagctcctgtagtacccctctctacgatcagggggggcccagtggagatcctgtc

35 cttcctgtacctgggcagtgcctatcacgcttctcggaaggatatgcttgacgccttgggcatcaccgccttgatcaacgtctcagccaattgtcctaacca
ctttgagggtcactaccagtacaagagcatccctgtggaggacaaccacaaggcagacatcagctcctggttcaacgaggctattgacttcatagactc
catcaaggatgctggagggagagtgtttgttcattgccaggccggcatctcccggtcagccaccatcgccttgcttacctcatgaggactaaccgggta
aagctggacgaggcctttgagtttgtgaagcagaggcggagtatcatctccccgaacttcagcttcatgggccagctgctgcagtttgagtcccaagtgc

40 tagcccctcactgctctgctgaagctgggagccctgccatggctgtccttgaccggggcacctctactaccacagtcttcaacttccctgtttccatccccg
tccaccccacgaacagtgccctgaactaccttaaaagccccatcaccacctctccaagctgctgaagggcaaggggaggtgtggagtttcacttgcca
ccgggtcgccactcctcctgtgggaggagcaatgcaataactctgggagaggctcatgggagctggtccttatttatttaacaccccctcacccccaa
ctcctcctgagttccactgagttcctaagcagtcacaacaatgacttgaccgcaagacatttgctgaactcggcacattcgggaccaatatattgtgggtac
atcaagtccctctgacaaaacagggcagaagagaaaggactctgtttgaggcagtttcttcgcttgcctgtttttttttttctagaaacttcatgcttgacacac

45 ccaccagtattaaccattcccgatgacatgcgcgtatgagagttttttacctttatttattttttgtgtaggtcggtggtttctgccttcacaaatgtcattgtctactc
atagaagaaccaaatacctcaattttgtgtttgcgtactgtactatcttgtaaatagacccagagcaggtttgctttcggcactgacagacaaagccagtgta
ggtttgtagctttcagttatcgacagttgtatgtttgtttatttatgatctgaagtaatatatttcttcttctgtgaagacattttgttactgggatgactttttttataca
acagaataaaattatgacgtttctattga

SEQ ID NO:38
50

MVMEVGILDAGGLRALLREGAAQCLLLDCRSFFAFNAGHIAGSVNVRFSTIVRRRAKGAMGLE
HIVPNAELRGRLLAGAYHAVVLLDERSASLDGAKRDGTLALAAGALCREARSTQVFFLQGGYE
AFSASCPELCSKQSTPTGLSLPLSTSVPDSAESGCSSCSTPLYDQGGPVEILSFLYLGSAYHASRK
DMLDALGITALINVSANCPNHFEGHYQYKSIPVEDNHKADISSWFNEAIDFIDSIKDAGGRVFVH

55 CQAGISRSATICLAYLMRTNRVKLDEAFEFVKQRRSIISPNFSFMGQLLQFESQVLAPHCSAEAG
SPAMAVLDRGTSTTTVFNFPVSIPVHPTNSALNYLKSPITTSPSC

SEQ ID NO:39

atacccatcaaatgaagcaccaaagacaactgtgttgagcgcccctgggcctggctcattcttaatcatattgccatctttactgctctgattcctaggatcc
ccgcaatgactctgaataatgtcaccatgcgccaaggcactgtgggcatgcagccacagcagcgctggagtatgcctgctgatgccaggcatctgatg
gtccagaaggatccccacccctgcaacctccgaaaccgccactctactgctccggaagagcactgccggcggacgtggtcgtccgactccacagact
cggtcatctcttctgagtctggaaacacctactaccgagtagtgcttataggggagcaaggagtgggcaagtccaccctggccaacatctttgcaggtgt
gcatgacagcatggacagcgactgtgaggtcttgggagaagatacatatgagcgtaccctggtcgttgacggagagagtgcaaccattatcctcctgg
acatgtgggaaaataaggggggagaacgaatggctccatgaccactgcatgcaggtcggggatgcctatctgatcgtctactctatcacagaccgtgca
agcttcgagaaggcatctgagctgaggattcagctccgcagggcccggcagacagaagacattcctataattttggttggcaacaaaagcgacttagtg
cggtgtcgagaagtgtctgtgtcagaagggagagcttgtgctgtggtgttcgactgcaaattcatcgagacctctgcggctgtgcagcacaacgtgaag
gaactgtttgagggcattgagcgacaggtgcgcctgccgagggacagcaaggagaagaatgagaggaggctggcctaccagaagaggcgggaga
gcattcccaggaaagccaggcgcttctggggcaaaattgtggccaaaaacaacaagaacatggcttcaagctccaagtcaaaatcctgccatgacctg
tctgtgctctaggcacccagtgtcacccagatgtcccttggtggacatcgttgaaggctattgggaccagtgatctatattagattggatacataagcattgt
tagacgcaacttccccctatggcagatggaaaccaacaggttagccttgtgggcaaccaagtgcacgggcaatgaatgagctctgtcaagagtcagtatt
tattcataggaaaagcttgagctgctacgtggatgtctcagactcatttaagacacgcttcgggttcacatgagtttctctctcctttggacagcagaatatttt
tttcctcagtgttgttccatgtgatttcgaggtccttgggtcatatagaaatgtaggggaaatggcggtagtttattggaaggagaagggctcactgcatactt
atatccctgaaacgacatctttagagctggcctcatcacagttgtgactatttctgctccagtgaagagaattgttagatttgctggaaactgaggcttactaa
cagttttgtttaaagaccacagagattgtagactaggagctatatggtactacttataggttcaaaaaattgtttacttatgtgtcgtagaagtgtttatttga
ggaaactattttttttttttgccaaattctacttagtcaaatcatcttctatgtcttgctgttttttaaatcattaagctatcataaaatattttttaaaaaaatctcaactat
attgataacctgcagtgcaaaattttaaatatagtcctgttttttcccccaaaacataaacatgccccatcctttgggttgcttctgtatgccacagctgaattata
tttattattttgcaataaccatttatatttgataaagatatttatgagcatatttcttactgagaaaatgtctgttttattacctttttatattttcaaagtattcaagtttt
tacctattgtcttataataaataaataaaatctttgaaaagg

SEQ ID NO:40

MTLNNVTMRQGTVGMQPQQRWSMPADARHLMVQKDPHPCNLRNRHSTAPEEHCRRTWSSDS
TDSVISSESGNTYYRVVLIGEQGVGKSTLANIFAGVHDSMDSDCEVLGEDTYERTLVVDGESAT
IILLDMWENKGENEWLHDHCMQVGDAYLIVYSITDRASFEKASELRIQLRRARQTEDIPIILVGN
KSDLVRCREVSVSEGRACAVVFDCKFIETSAAVQHNVKELFEGIERQVRLPRDSKEKNERRLAY
QKRRESIPRKARRFWGKIVAKNNKNMASSSKSKSCHDLSVL

SEQ ID NO:41

tatcccgctgttgctgcaagccggctgcatcttagttggccatgaagaccccagcacagcggctgcaccttcttccactgttgttgctgctttgtggtgagt
gtgcccaggtatgcggctgcaacgagacagggatgctggagaggctgcctcgctgtgggaaagccttcgctgacatgatgcagaaggtggctgtctg
gaagtggtgcaacctgtcggagttcatcgtgtattatgaaagcttcactaactgcaccgagatggagaccaacatcatgggctgctactggcccaaccc
gctggcccagagcttcatcactggaatccacaggcagttcttttccaactgcacggtggacaggacccactgggaagacccccccggatgaagtactca
tcccactgatcgcggttcctgtcgtgctgactgtggctatggctggcctggtggtgtggcgcagcaagcacactgatcggctgctgtgaggatctgctgg
atggagggccatgcctggcaggctgggagaatgttgctcagagctctgagagctggcagactcggcttctgtctggtttgctttggccacaccctacctg
gccatgccaaagtcctcccgaccaggctggtgtggcccttgctgtctagcctgccgcctgctggggttcagattgtccatactttgctcttcttgggctagt
ggaagaaagtgacaaatcccaagtttgtggaccaggcatggaaatcaactgttgctgagccccgctcccaggctcggttccctagtttctagccgtttct
tggcagagtcttgctcagcctgaacccccgccccaggtcctgacccatttctagtcctgaccctgacccctgctacacttggccagagagggcaggcaa
ggtcatctggaagatgtggacgcccccccgcctctattcaagagactgagcacatcatttatcagacatgaaggatagcctgggggtcattaggagccac
gtgtgacctactgacccacctgcctgtcctctctgtgatctgtcacgattctgtgtccagtgtgggctggagctgtggcttgtttagcccttcaaagacacct
accctgcaggtagagcgtgaacctccttcttgaggggtattcctgggagtggggcgcactgagtgtgctcaagggttctgtctgctgatgtcagttcttttt
gattaaagtgtctccttacaaaaaaaaaaaaaaaaaaaa

SEQ ID NO:42

MKTPAQRLHLLPLLLLLCGECAQVCGCNETGMLERLPRCGKAFADMMQKVAVWKWCNLSEFI
VYYESFTNCTEMETNIMGCYWPNPLAQSFITGIHRQFFSNCTVDRTHWEDPPDEVLIPLIAVPVV
LTVAMAGLVVWRSKHTDRLL

SEQ ID NO:43

atgctcaacaaagccaagaattcaaagagtgcccagggtctggctggtcttcgaaaccttgggaacacgtgcttcatgaactcaattcttcagtgcctga
gcaacacccgagagctgagagattactgcctccagaggctgtacatgcgggacctcggccacaccagcagcgctcacacggccctcatggaagagt

ttgcaaaactaatccagaccatatggacgtcgtcccccaatgatgtggtgagcccatctgagttcaagacccagatccagagatatgcgccacgcttcat
gggctataatcagcaggatgctcaggaattccttcgtttccttctggatggtctccacaatgaggtgaaccgggtggcagcaaggcctaaggccagccc
tgagacccttgatcatctccctgatgaagaaaaggggcgacagatgtggaggaagtatctggaaagggaagacagtcggattggggatctcttcgttg
ggcagctgaagagctccctcacatgcaccgattgtggctactgctctacagtcttcgatcccttctgggatctctcgttgcccatcgcaaagagaggttac
cctgaggtgacgttaatggattgtatgaggctcttcaccaaagaggacatattggatggtgatgagaagccaacttgctgccgctgccgagccagaaaa
cgatgcataaaaaagttctctgtccagaggttcccaaagatcttggtgctccacctgaagcgattctcagaatccaggatacgaaccagcaagctcacaa
catttgtgaatttcccactaagagacctggacttgagagaatttgcttcagaaaacaccaaccatgctgtttacaacctgtatgctgtgtccaatcactccgg
aaccaccatgggaggcccactatacagcctactgccgaagtccggttacaggcgaatggcacactttcaatgattccagtgtcacacccatgtcctccag
ccaagtgcgcaccagcgacgcctatttgctcttctatgaactggccagtccaccctcccgtatgtagcattgaggagctgcggcccttccctcttccctgt
ggtggccccacgtcctaag

SEQ ID NO:44

MLNKAKNSKSAQGLAGLRNLGNTCFMNSILQCLSNTRELRDYCLQRLYMRDLGHTSSAHTAL
MEEFAKLIQTIWTSSPNDVVSPSEFKTQIQRYAPRFMGYNQQDAQEFLRFLLDGLHNEVNRVAA
RPKASPETLDHLPDEEKGRQMWRKYLEREDSRIGDLFVGQLKSSLTCTDCGYCSTVFDPFWDLS
LPIAKRGYPEVTLMDCMRLFTKEDILDGDEKPTCCRCRARKRCIKKFSVQRFPKILVLHLKRFSE
SRIRTSKLTTFVNFPLRDLDLREFASENTNHAVYNLYAVSNHSGTTMGGHYTAYCRSPVTGEW
HTFNDSSVTPMSSSQVRTSDAYLLFYELASPPSRM

SEQ ID NO:45

gcggagcgtgagctgtgcgagcgagcgagcgcgagcatagcctgcgagcgagcagagagaaagagcgagggcaagagagcggcgaggcgcc
tgcgcgatgctcgggcccctaagcccgcggcgctgagccagccgggacggacatgcgcgggagggcgccgcggggtcccgctcccttgggga
atgaaagctactggttgacttaaaaacacctgggctttacaaatttgaaggcatcccagagtggggcacaatgtcaacagcaggagttgctgctcaggat
attcgagtcccattaaaaactggatttctccataatggtcaggccttggggaatatgaagtcctgctggggcagtcacagtgagtttgaaaataactttttaa
atattgatccaataaccatggcctacaatctgaactcccctgctcaggagcacctaacaactgttggatgtgctgctcggtctgctccagggagcggcca
cttctttgcagagtgtggtccatctccaaggtcaagcttgcccctctcttgttatctcaccaagtgaaagctcgggacagcgtgaagaggatcaagttatgtg
tggttttaagaaactctcagtgaatggggtctgcacttccacacctccacttacacccattaaaagctgcccttccctttcccctgtgcggctctgtgtgatc
ggggttctcggccgctcccgccactgcccatctctgaagacctatgtgtggatgaggccgacagtgaggtagagcttctaaccaccagctcagacaca
gacttgcttttagaagactctgcgccttcagatttcaaatacgatgctcctggcaggcgcagcttccgtgggtgcggccagatcaactatgcatattttgac
agcccaactgtttctgtggcagatcttagctgtgcatctgaccagaacagagttgttccagacccaaacctcccccacctcaaagccatcgcagattaa
ggaggtctcactcaggaccagctgggtcatttaacaagccagccattcggatatctagctgcacacacagagcttctcctagctctgatgaagacaagc
ctgaggtccctcccagggttcctatacctcctaggccagcaaagccagactatagacggtggtcagcagaagtgacctccaacacctacagtgatgaa
gataggcctcccaaagtccccccgagagaacctttgtctcggagtaactcccgtaccccaagtcctaaaagccttccgtcttacctcaatggggtcatgc
ccccaacacagagcttcgctcctgaccccaagtatgtcagcagcaaagccctgcagagacagagcagcgaaggatctgccaacaaggttccttgcat
cctgcccattattgaaaatgggaagaaggttagctcaacgcattattacttactacctgagaggccaccgtacctggacaaatatgaaaagtattttaagga
agcagaagaaacaaacccaagcacccaaattcagccattacctgctgcctgtggtatggcctctgccacagaaaagctggcctccagaatgaaaatag
atatgggtagccacgggaagcgcaaacacttatcctacgtggtttctccataaatatgggggtcatgattcaacagaagttacatgggatgaatggctccc
agttttccagtttgaggttcgtagaacaatgtcaagtggcaaaatgaagttggtggactccgccttaatgagaaaggcttagagcagttatgaggtgctgtt
atgctgggagtccctgatctatcagcataggagaaaaaagtatgatttaaagatgtgctaggggggagggaaaaatgggcaactttacatttgactacatt
atatacctatgtataaaaagtgcggtgtaaccatagaccatagctgcaggataaccaattagtcactcttagagtaatctgtattcagaacaattcaaacaagc
tggaggaacagctcctgatagtgtgagaattgagcaaatgggagaaagcaatattgttagatcagattataaatttgttaagtttaaagattcctggcataca
ggcctgctctataaatttgtttcccccttccctgccagcagtcttctccatacacgacagggcgtgttctccaccaggcctgtaacatcttgttgagatcatttc
tatggcccaatacttgtcgctctggggtttgtcttgttgaggagaggacagcagtttctggaccatgttatcacctgtgtgtgtctcatatcttggaaattgac
agatttggtgaataacttttccatactattcctgcttttcccatccactgaaacagcctgttgtagcaagaggctttcaagagtgcagtggagttgcgctggcc
atcagtgtttggggtctgagtttgatagactagtgcagcgatcagccatatgattgagagctactttggggatatatggtacgttgtttttgtttttagacttaat
aaaggacaacacgagctggtcttgtgttgctggttcctattcagtatttcctggggattgtttgcttttaagtgaaacacttctgaccaatagcacagaacgt
cttaatgccagaggtcacttcagcatcttcctgctttgaaaactcacgctggctgcttcactgccctgagattcagtgagacacgcagttgtgttcagtttta
catcctctgattgtttatcttgtgcagataaacacaaagagaaggtgcttgctagcagggacactgctgccatgtcccaacaagctgttcagtttaaactgct
gaatgacattattgagctatttaaagcttactttagtatgaactaaatgaaggttaaaacatgctttagaaaaatgcactgatctccgcactgtgtgtacagta
ttggacaaaggatttattcattttgttgcattattttgaatattgtcttttcattttaataaagttatattacttatttatgaaaaaaaaaaaaaaaaa

SEQ ID NO:46

MSTAGVAAQDIRVPLKTGFLHNGQALGNMKSCWGSHSEFENNFLNIDPITMAYNLNSPAQEHL
TTVGCAARSAPGSGHFFAECGPSPRSSLPPLVISPSESSGQREEDQVMCGFKKLSVNGVCTSTPPL

TPIKSCPSPFPCAALCDRGSRPLPPLPISEDLCVDEADSEVELLTTSSDTDLLLEDSAPSDFKYDAP
GRRSFRGCGQINYAYFDSPTVSVADLSCASDQNRVVPDPNPPPPQSHRRLRRSHSGPAGSFNKP
AIRISSCTHRASPSSDEDKPEVPPRVPIPPRPAKPDYRRWSAEVTSNTYSDEDRPPKVPPREPLSRS
NSRTPSPKSLPSYLNGVMPPTQSFAPDPKYVSSKALQRQSSEGSANKVPCILPIIENGKKVSSTHY
YLLPERPPYLDKYEKYFKEAEETNPSTQIQPLPAACGMASATEKLASRMKIDMGSHGKRKHLSY
VVSP

SEQ ID NO:47

atggctgaacaacttcttcctcaggctttgtatttgagcaatatgcggaaagctgtgaagatacgagagagaaccccagaagacattttcaaacctaccaa
tgggatcatctatcactttaaaaccatgcaccgatacacgctggagatgttcagaacatgccagttttgcccacagttccgagagatcatccacaaagcac
ttattgacagaagtgtccaggcttccctggaaagccagaagaagctcaactggtgtcgtgaagtcaggaagctcgtggctctgaaaaccaatggtgatg
gaaactgcctcatgcatgcagcttgtcagtacatgtggggtgttcaggatactgacctggtcctgaggaaggccctctgcagcacccttaaggagacag
acactcggaactttaaattccgctggcagctggaatctctgaaatctcaggaatttgtggaaacaggactttgctacgacactcggaactggaatgacga
atgggacaacttggtcaaaatggcatcagcagacacacctgcagcccgaagtggacttcagtacaattccctggaagaaatccacatatttgtcctcagc
aacatcctcagaagacccatcattgtcatttcagacaaaatgctaagaagtttggaatctggttccaattttgctcctttgaaagtgggtgggatttatctgcct
cttcactggcctgcccaggagtgttacagatatcccatcgtcctaggctatgacagccagcactttgtacccctggtgaccctgaaggacagtggacctg
aacttcgcgctgttccacttgttaacagagaccggggtaggtttgaagacttaaaagttcacttcttgacagatcctgagaatgagatgaaggaaaagctt
ctaaaggagtacttgatagtgatggagatccctgtgcaaggctgggaccacggcacgactcacctgatcaacgctgcaaaattggatgaagctaactta
cccaaagaaataaatttggtagacgattactttgagcttgttcagcacgaatacaagaaatggcaggagaacagcgatcaggccaggagagcggcaca
tgcgcagaaccccttggagccttccacaccccagctatcactcatggatataaaatgtgagacacccaactgtcctttcttcatgtccgtgaacactcagc
ctttatgccacgaatgctcagagaggcgccaaaagaatcagagcaagctcccaaagctgaactcgaagctaggccctgaaggactcccaggcgtgg
gacttggctcctcaaactggagccccgaggaaaccgctggaggacctcattcagccccacccacagcacccagcctttttctcttcagtgagaccactg
caatgaagtgcaggagtcctgggtgcccttttactttgaatgtgcagcataatggattctgtgagcgttgccacgcccggcagattaatgccagccacac
cgcagaccctggaaagtgccaagcctgccttcaggatgtcactcggacctttaatggcatctgcagtacctgtttcaaaaggactacagcagagcccag
ctccagcctcacttccagtatccctgcctcctgtcaccaacgctccaagtctgacccctcacaactcatccaaagtctcactccacactcttgccaccgga
ctggaaatgtctctccttctggctgcctctcccaggctgcacggactccaggagacagagcagggacaagcaagtgcaggaaagctggctgcatgtat
tttgggactccagaaaacaagggcttttgcactctatgtttcatcgaatacagagaaaataagcagtctgttactgcctctgcgaaagctggttccccggcc
cccaggttccagaacaatgtcccgtgcctgggcagggagtgcggcacactcggaagcaccatgtttgaagggtactgtcagaagtgtttcatcgaagct
cagaaccagagattccatgaagcaagaagaacggaagaacagctgagatcaagccagcatagagacatgcctcgaactacacaggtagcctcaagg
ctgaaatgtgccccgggcctcctgcaagaacattctggcctgtcgcagtgaggaactctgtatggagtgccagcacctaagccaacgagtaggttctgtg
gcccaccggggtgagcccacgcctgaagagccccctaaacagcgctgccgggcccctgcttgtgatcactttggcaatgccaagtgtaatggttactg
caatgagtgctaccagttcaagcagatgtatggctaa

SEQ ID NO:48

MAEQLLPQALYLSNMRKAVKIRERTPEDIFKPTNGIIYHFKTMHRYTLEMFRTCQFCPQFREIIH
KALIDRSVQASLESQKKLNWCREVRKLVALKTNGDGNCLMHAACQYMWGVQDTDLVLRKA
LCSTLKETDTRNFKFRWQLESLKSQEFVETGLCYDTRNWNDEWDNLVKMASADTPAARSGLQ
YNSLEEIHIFVLSNILRRPIIVISDKMLRSLESGSNFAPLKVGGIYLPLHWPAQECYRYPIVLGYDS
QHFVPLVTLKDSGPELRAVPLVNRDRGRFEDLKVHFLTDPENEMKEKLLKEYLIVMEIPVQGW
DHGTTHLINAAKLDEANLPKEINLVDDYFELVQHEYKKWQENSDQARRAAHAQNPLEPSTPQL
SLMDIKCETPNCPFFMSVNTQPLCHECSERRQKNQSKLPKLNSKLGPEGLPGVGLGSSNWSPEE
TAGGPHSAPPTAPSLFLFSETTAMKCRSPGCPFTLNVQHNGFCERCHARQINASHTADPGKCQA
CLQDVTRTFNGICSTCFKRTTAEPSSSLTSSIPASCHQRSKSDPSQLIQSLTPHSCHRTGNVSPSGC
LSQAARTPGDRAGTSKCRKAGCMYFGTPENKGFCTLCFIEYRENKQSVTASAKAGSPAPRFQN
NVPCLGRECGTLGSTMFEGYCQKCFIEAQNQRFHEARRTEEQLRSSQHRDMPRTTQVASRLKC
ARASCKNILACRSEELCMECQHLSQRVGSVAHRGEPTPEEPPKQRCRAPACDHFGNAKCNGYC
NECYQFKQMYG

SEQ ID NO:49

tttttttcatacttgataaaatttatttaaaaaaaaaagagaataataattatacccttgacaaaataaaagatcttataatataaatgttcttagaaaatatatga
aaagataatattacaaatattaataaatcaatattcacatgacagcaaaagtggcaatgattctacaagaaggtgaggaggaagatgctttccggtccgca
gcaatgtctctggagaggcctcctgtcccttctttctccttcaatgaggtgtgctcctattttaagaaaacctgatacaagcagatctaatcagtttaggaagc
tggtatttatttgcaccgcaaaataattttttacaaaaaaaattctatcaaggatcctttaaatatcaagtttcccaatgcacttagaatacagttaaccaaattta
caagtcttcgacttctctctggtgtagctctaccgcanggcgtgaggtattgctgaagtgagtgcgtgcgtccgtg